UTILIZATION OF THE HEALTHWISE HANDBOOK AT MADIGAN ARMY MEDICAL CENTER

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The focus of this project is self-care management, particularly the Healthwise Handbook. The study will attempt to answer the question of how well and how often are health care beneficiaries at Madigan Army Medical Center using Healthwise Handbook to treat themselves instead of relying on the health care provider.

A comparison study on the utilization of the Healthwise Handbook by Madigan's beneficiary population will be performed through reviewing outpatient appointments by the sample population in Madigan's Composite Healthcare System (CHCS) database and by surveying a similar sample population.

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Abstract

The focus of this project is self-care management, particularly the Healthwise Handbook which was developed by Healthwise Inc. in 1976. The study will attempt to answer the question of how well and how often are health care beneficiaries at Madigan Army Medical Center using the various self-care techniques in the Healthwise Handbook to treat themselves instead of relying on the health care provider.

A comparison study on the utilization of the Healthwise Handbook, a self-care manual, by Madigan's beneficiary population will be performed through reviewing outpatient appointments by the sample population in Madigan's Composite Healthcare Computer System (CHCS) database and by surveying a similar sample population.

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CHAPTER ONE

INTRODUCTION

The average American experiences some level of health problems on an average of 120 days per year. Since Americans patronize health professions an average of four to five times a year, generally 115 days remain during which health problems are faced without professional care. Medical self-care is what a person does on those 115 days to improve his health (Kemper, 1980, 63).

It is hypothesized that by providing health care beneficiaries at Madigan with self-care information at home, an outpatient clinical visit can be avoided. It is speculated that many beneficiaries do not like having to come to a clinic or an emergency room when they are not seriously ill, but come mainly to receive information and reassurance about their illness. If a self-care manual helps to meet these needs, a measurable change in visit utilization might occur.

Self-care has become more important at Madigan Army Medical Center (MAMC) and the entire military health services system (MHSS) because of the budgeting changes for the military medical treatment facility (MTF)(Region 11 1995 Regional Health Services Plan, 1995, H-2). In the past, military MTF's were budgeted on a workload-based budgeting system. In a workload-based budgeting system, the MTF's annual budget for the upcoming year was based on a weighted calculation on the total number of outpatient and

inpatient visits for the previous year. Simply stated, the more visits by the patient the previous year, the more revenue the MTF would receive the following year. This system of reimbursement actually promoted the MTF to increase the number of outpatient and inpatient visits by the healthcare beneficiary. This system of reimbursement is similar to the fee-for-service reimbursement system that most providers in the private sector still use today.

Recently, the Department of Defense (DoD) has implemented a managed care program for health care beneficiaries known as TRICARE. TRICARE is a managed care program for the active duty military and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)-eligible beneficiaries. CHAMPUS is the health benefits program for all the uniformed services, much like a civilian insurance company.

TRICARE has three managed care options. The first option is TRICARE Prime. This option is a health maintenance organization type of benefit. It provides beneficiaries with a primary care manager, no deductibles and small copayments, and enhance preventive care benefits (including the Healthwise Handbook). The second option, TRICARE Extra, is a preferred provider network option. It offers a lower out-of-pocket expense for beneficiaries who seek care at one of these network providers. The third option, TRICARE Standard, is the current CHAMPUS benefit (a government indemnity program). In this option CHAMPUS beneficiaries retain their freedom to choose among several health

care alternatives but includes deductibles and higher copayments than CHAMPUS Prime (Region 11 1995 Regional Health Services Plan, 1995). Only TRICARE Prime requires that the health care beneficiary enroll in the program (TRICARE Prime and Extra Handbook, 1995, 1 & 5).

With the advent of TRICARE, the military health service system's budgeting program has been changed to a capitation budgeting concept. Capitation budgeting can be defined as a prospective reimbursement process where the health care system is paid a fixed price per person to provide a defined range of services over a specified time period (CHAMPUS Handbook, 1993, 6).

Under this definition, capitation has three crucial elements: (1) care is prepaid with a predetermined, agreed-upon price, and price does not vary according to the value or intensity of service; (2) the payment is tied to a specific population of capitated patients, typically involving some type of an enrollment system; and (3) the provider bears full financial risk if expenditures exceed payments. Combined, these elements give the provider a strong incentive to manage care more wisely (CHAMPUS Handbook, 1993, 7). Under a capitated budgeting system, it is expected that reducing the number of outpatient clinical visits will benefit the MTF by allowing it the flexibility to use these saved resources in other mission essential areas.

The distribution of the Healthwise Handbook to the military health care beneficiaries that enroll into the TRICARE Prime program in Oregon and Washington (Region 11) is part of the wellness education plan in the contractual agreement between the DoD and Foundation Health Federal Services, Inc., a civilian healthcare contractor. Foundation Health is the healthcare contractor that is assisting DoD in providing healthcare to military beneficiaries in Region 11.

The cost of the Healthwise Handbook to the government is estimated to be approximately $7.70 per each family. The total cost for the Healthwise Handbook is projected to be approximately $796,757 over a five year period. This cost was determined after this topic was discussed with the Operations Division of the Northwest Lead Agent (Region 11).

This project will focus on the utilization change in outpatient visits as a result of the issuance of the Healthwise Handbook, a self-care manual. The Healthwise Handbook, a 286-page volume, was first published in 1976. The handbook describes common illnesses and symptoms, covers prevention and home treatment of over 130 common health problems, and offers advice on when to call a physician (Sandberg 1994, 1). Chapters cover such broad categories as back and neck pain, abdominal problems, skin ailments, infant's and children's health, women's health, men's health, injuries and sports medicine and mental self-care (Employee Benefit News, 1991, 1).

Healthwise Inc. was founded in 1975 as a non-profit health promotion research and development center. In addition to its medical self-care books and self-care program, Healthwise publishes materials and furnishes programs relating to broader wellness issues and health issues unique to older adults. The organization is supported by foundation grants as well as by fees charged for its publications and program services (Employee Benefit News, 1991, 2).

The Healthwise Handbook was originally developed in 1976. It is now in its 12th edition. The purpose of the handbook is to provide a dependable, medically sound resource for providing high quality care at home and for helping to get the most out of an outpatient visit (Healthwise Instructor Guide, 1994, 3).

Self-care handbooks are currently used to provide self-care to a wide range of the most common health problems. They help people recognize problems, develop home treatment plans, and determine whether or not they should see a doctor. Some handbooks identify symptoms and treatment guidelines; others use decision algorithms (Kemper, 1990, 7).

It is hypothesized that a well-formulated self-care program with modest interventions that provide healthcare beneficiaries with information and guidelines about self-management can reduce health risks, lower rate of services, and play an integral part in controlling health care costs by decreasing the number of sick days, outpatient costs and hospitalization costs.

These interventions would offer objective guidelines to help a person decide whether medical assistance is required for a particular problem and provides information about home treatment when appropriate. They would appear to work through better information and increased confidence that much illness can be self-limited.

Self-care manuals are different from the more traditional diagnosis-based medical reference books due to the fact that self-care manuals are symptom based. Patients reference symptoms in the self-care manual and can self-diagnose and self-treat certain illnesses through the use of decision trees (Hey, 1994, 70).

It has been hypothesized by many studies (e.g. Kemper, Vickery, and Fries) that by putting more decision-making ability into the hands of patients, self-care may lead to a reduction in the utilization of some health services. This would occur as consumers appropriately treat those minor illnesses themselves instead of seeking professional care (Fleming, 1984, 22).

The primary goal of self-care programs is to reduce the cost of healthcare, and at the same time, improve the quality of healthcare for individuals through better information and better communication with their doctor. The benefit of cost reduction is very important, but it also important that quality improves as well (Kemper, 1992, 1). If the intervention of self-care merely reduces outpatient visits, rather than improving decisions about

when to seek care, one might expect to see increased hospitalization rates in the treatment period, or at least a resurgence of outpatient visit rates after an initial decline (Lorig, 1985, 1053).

The focus of this project is self-care management. It will attempt to answer the question of how well and how often are health care beneficiaries at Madigan Army Medical Center using the various self-care techniques to treat themselves instead of relying on the health care provider.

Conditions Which Prompted the Study

Overutilization of medical services is a significant problem at many military MTFs including Madigan Army Medical Center. Instead of focusing on prevention, the military health services system (MHSS) has focused predominantly on the curative and rehabilitative and largely ignored the prevention for active duty dependents and retirees.

In addition to the merits of disease prevention, self-care can help reduce the total number of outpatient visits in a MTF. There is great potential for many of the military MTF's, including Madigan, to decrease the number of outpatient visits through educating medical beneficiaries on the use of self-care.

Part of the health promotions program under the TRICARE contract includes the promotion and usage of the Healthwise

Handbook. The question that the leadership at Madigan and the MHSS as a whole wants to answer is whether self-care manuals reduce costs by reducing the number of outpatient clinical visits.

Madigan Army Medical Center is a 1.2 million square foot, 414-bed tertiary-care hospital with a major teaching mission located at Fort Lewis, Washington. Built in 1992, Madigan is one of the most modern healthcare facilities in the United States. Madigan is the 2nd busiest medical center in the DoD with over one million outpatient visits and 21,000 hospital admissions annually. Madigan serves as a primary referral center for Region 11, supporting over 340,000 DoD beneficiaries throughout the states of Washington, Oregon, Alaska, Montana, California, Idaho, and Nevada (Chowen, 1996, 5).

Numerous studies (e.g. Drabinski, Lorig, and Vickery) have indicated that the usage of a self-care manual can decrease outpatient visits by an average of 7-24 percent (Mettler, 1994, 2). Given these promising findings regarding the reduction in cost and utilization through the usage of self-care, the impact on health-seeking behavior through self-care intervention warrants investigation.

The results of this study will provide information to the decision-makers at Madigan and the MHSS about the self-care program and provide a comparison to expected results. It can also be used to determine return-on-investment, based on reduced

outpatient utilization, and the perceived value of this program to both the employees and Madigan beneficiaries alike. The study will also provide information on how to continue to improve the program.

Statement of the Problem

Does the use of self-care manuals decrease utilization of outpatient visits and emergency room visits.

Literature Review

The self-help ethos has definitely flourished in the health care market. "The old adage 'physician, heal thyself,' is being rewritten these days as 'patient, heal thyself' (Pinto, 1991, 100). Interest in self-care for minor illness has intensified as a result of various reports showing that the practice of self-care can reduce the utilization of health services by improving the health knowledge of the health care beneficiary. This can result in a more appropriate use of medical care (Stergachis, 1990, 23).

As a result of the growing self-care movement, health care beneficiaries are assuming more responsibility for prevention, detection, and treatment of health problems in a manner that supplements or replaces professional services (Moore, 1980, 2317).

Self-care, along with the many functions of health promotion, is part of the overall concept of demand management. Demand management attempts to control health-care utilization by reducing inappropriate use through patient and provider education and shared decision-making (Leutzinger, 1994, 17). Demand management involves education efforts that help members make better health decisions about the following:

* Self-care provided in the home.
* When and where to access medical services.
* Proposed treatment alternatives.

To achieve an optimal level of demand management, medical treatment facilities focus on the following:

1. Member Empowerment - Helping the member to accept a greater role in both self-care and in medical decision-making.
2. Provider Partnership - Helping the physician refine a skill set for supporting the member's new role in self-care and shared decision-making.
3. Information on Demand - Providing each member the medical information they want, just in time to be used in medical decisions (Healthwise Program Resources).

Health promotion is defined by the World Health Organization (WHO) as "The process of enabling people to increase control over and improve their health" (Healthwise Program Resources). The word "health" is then divided into three subsections.

1. Health Environment - such as clean air, water and food.
2. Personal Health Habits - wellness programs that focus on individual lifestyle habits, health screenings, etc.
3. Health Problems - how the individual handles health problems and what kind of medical consumer they are (Healthwise Program Resources).

Self-care focuses on health problems. It is defined as what a person does to themselves to prevent, recognize and treat specific health problems. Simply stated, self-care is what people do to treat their own health problems or those of their families, with or without help from health professionals (Kemper, 1984, 32). It includes the care that people provide in the home and the decisions they make when they access the health care system.

It is estimated that 80 percent to 95 percent of all health problems are treated at home without any help from a health

professional (Kemper, 1992, 1 & Vickery, 1986, 23). These include the colds, backaches, headaches, cuts, and bruises that account for most day-to-day health concerns.

When a person comes down with a fever, that particular person with the fever will be the first to react to the problem. This is because the problem affects them more than anybody else. Self-care activities can range from home treatment of a cold with rest and fluids, to preparing for major surgery, to managing a chronic health problem (Healthwise Instructor Guide, 1994, 3).

Educational materials and interventions have been used for centuries to improve the quality of medical self-care. In 1747, John Wesley, founder of the Methodist Church, published a medical self-care book entitled *Primitive Remedies*. In 1819, Thomas Jefferson required all freshman at the University of Virginia to enroll in a medical self-care course. (Healthwise Instructor Guide, 1994, 3).

Until the early part of this century, most Americans did not have access to professional health-care providers. Maintenance of health and treatment of illness and injury were based on the knowledge and skill of family members and community laypersons, such as lay midwives (Harris, 1995, 2).

Although medical self-care has always been an unavoidable fact of life, organized self-care education is relatively new. Until 40 to 50 years ago, such care for minor health problems was generally taught to a woman by her mother. Since then, the

phenomenal expansion of the science of medicine has overshadowed or put in doubt consumer confidence in caring for themselves (Kemper, 1980, 63).

Between 1920 and 1960, the management of health care was transferred to professionally educated providers who frequently focused on cures rather than prevention. Much self-care knowledge was lost as more and more people transferred health decision-making to health care providers (Harris, 1995, 2).

In recent years once again the trend has begun to change. Many approaches to illness that worked in the past are now known to be consistent with medical science. Many new guidelines based on sound medical advice have been placed within the easy reach of consumers. (Kemper, 1980, 63).

This present self-care movement has varied and early roots in the United States. Keith Sehnert's *Course for the Activated Patient* was the first of a new generation of medical self-care programs to address a broad range of health concerns. This was a basic change in the patient's role in the doctor/patient relationship. In the twenty-five years since the program's 1970 introduction, similar classes and workshops have been organized virtually everywhere in the United States. Self-care manuals, guides, videotapes and computer software have been developed to help meet the public's increasing interest in regaining self-responsibility for their health (Kemper, 1982, 710).

Although self-care programs have been available for many years, only recently has there been a real interest in developing them. There are two reasons for the shift in interest toward self-care. The first reason is a change of attitude among physicians, while the second reason is practical economics (Kemper, 1992, 5).

Fifteen years ago there was active resistance to self-care programs by physicians. Today, a large percentage of physicians are self-care supporters. Many physicians have learned the value of working with educated patients. They have also learned the high cost of poor communication with their patients. These costs have included their frustrations with dealing with uninformed patients and the rise of malpractice claims (Kemper, 1992, 5).

Practical economics is the other reason for increased interest in self-care. Cost containment efforts that focus on controlling the supply side of health care have been a miserable failure. Controls on one aspect of health care (such as inpatient utilization) have been answered by corresponding increases in other areas (such as outpatient utilization). In spite of these controls, a large percentage of health care services are simply not needed. A sure way to reduce costs is to reduce the demand for services (Kemper, 1992, 5).

Medical self-care education is viewed as one strategy on a continuum of self-care, self-help, patient education, health promotion, and wellness activities all based on self

responsibility for health (Kemper, 1980, 63). Figure 1 illustrates a continuum of self-care education based on the extent to which it is initiated by a specific health problem. In this paradigm, medical self-care is distinguished from most patient education and self-help programs because it generally occurs in anticipation of health problems. Medical self-care stresses how to recognize common problems, what to do when they occur, and when and where to seek appropriate help. It provides a knowledge and attitude base upon which to build other self-care competencies as they are needed (Kemper, 1980, 64).

Within this framework, medical self-care can be defined as organized efforts to help generally healthy individuals develop skills, knowledge, and motivation for preventing, recognizing, and managing common health problems that may affect themselves or their families (Kemper, 1980, 64).

Although self-help and patient education may cover the same content areas as medical self-care, they do so usually after a problem has been discovered. Examples of these would include Alcoholics Anonymous or an inpatient nutrition program (Kemper, 1980, 64).

Conversely, wellness and health promotion programs generally can be distinguished from medical self-care education by their orientation to positive health objectives unrelated to specific health problems (Kemper, 1980, 64).

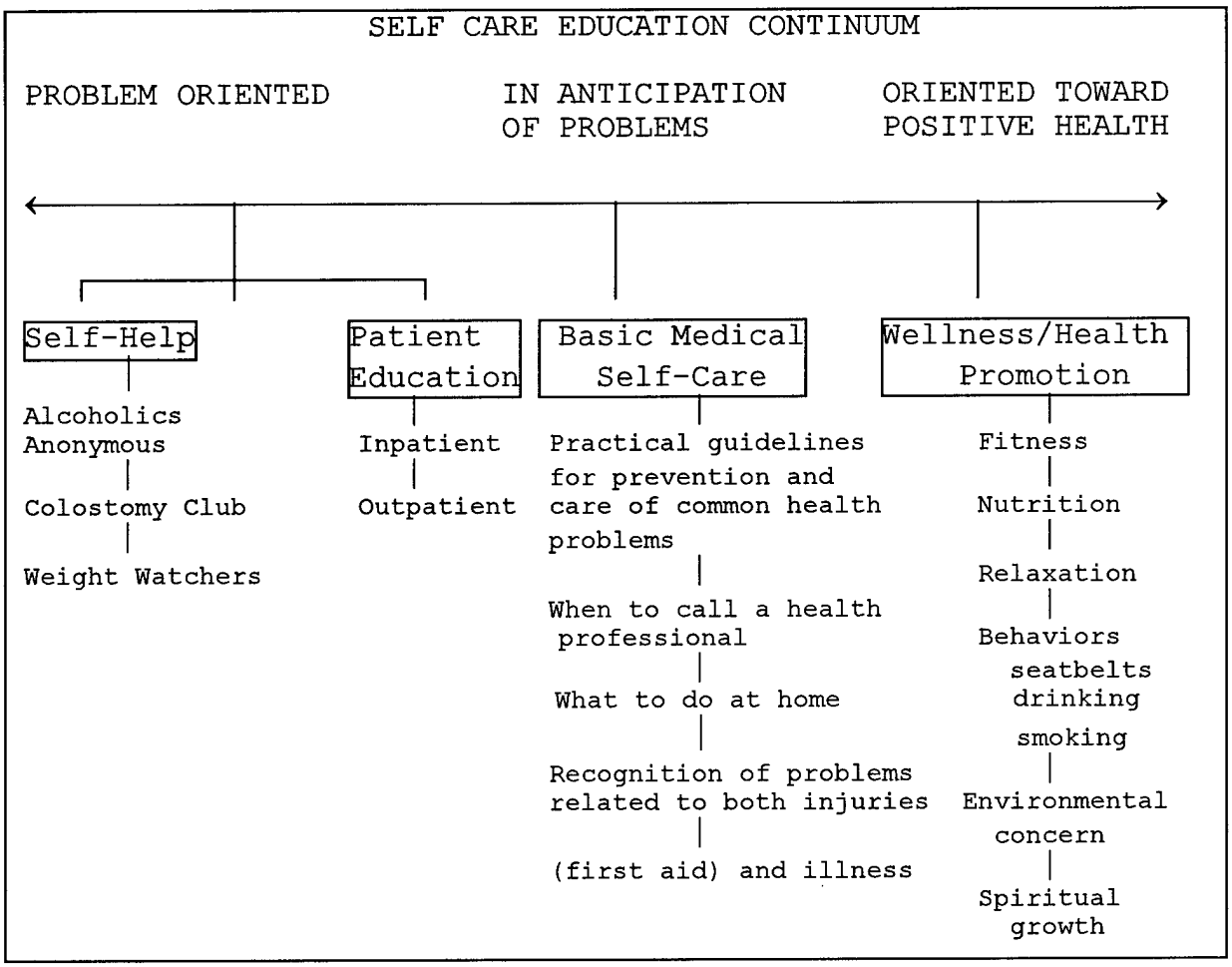

Figure 1: Self-Care Education Continuum (Kemper, 1980, 64)

Self-care and health promotion are closely related yet distinctively different. Both are based on self-responsibility for health. Both motivate people to make changes and reinforce each other. However, self-care programs usually focus on the immediate treatment of disease or symptoms while health promotion programs deal with longer term prevention of chronic disease in asymptomatic individuals. As a result, self-care programs usually have a more immediate impact on health care costs (Kemper, 1992, 2).

Self-care programs can increase support for health promotion efforts. For these reasons, health promotion professionals are including self-care into their program development plans (Kemper, 1992, 1). In addition, self-care programs can link health promotion activities to measurable results of improved health or reduced costs. Through self-care education, health promotion professionals can demonstrate measurable improvements in health behavior, employee satisfaction and health care costs (Kemper, 1992, 6).

These areas are by no means independent. They are all based on the same concept of self-responsibility and health activation. They are also not pure. The same jogging class that may be a wellness program for one person could be a patient education program for a rehabilitated heart patient. It could also be a program initiated through a basic self-care class anticipating coronary disease or even stress management problems. Nevertheless, the continuum does provide some tentative boundaries for this discussion (Kemper, 1980, 64).

As noted earlier, the primary purpose of self-care is to reduce demand for medical services. There are two inter-related elements to be addressed on the demand side; the "need" for medical service and the "demand" for medical services, and both can be reduced with an effective self-care program. "Need" refers to the illness burden of the country. If treatment for a heart attack costs $50,000, then that cost is avoided for that

treatment if the heart attack does not occur (Fries, 1993, 321). If a low birthweight baby costs $125,000, then that cost is avoided if the baby is of normal weight. Excessive need is generated by the occurrence of a preventable illness and outpatient visit due to a lack of education about self-care. "Demand" refers to requests for medical services, and excess demand refers to requests for medical services that are unlikely to improve health. If a doctor visit for a cold, with attendant test and medications, costs $130, then this amount, multiplied by many millions of such visits, represents the large costs to be avoided if these doctor visits are not made.

Individuals, after adjustment for health status, vary greatly in their requests for services. Some 20 percent of individuals make up over 70 percent of demand (Fries, 1994, 56); these individuals tend to lack health confidence (personal self-efficacy) and tend to over-value the contribution of medical services to health. Health confidence is something that can be encouraged through the use of self-care manuals (Fries, 1994, 56).

A self-care program that is directed at reducing demand will be unlikely to reduce costs unless a number of conditions are present: The preventable illness makes up a large fraction of the demand; risky behavior is expensive in terms of medical costs; approaches in self-management reduces costs; the present system does not link the use of resources closely to the requirements of

illness; and health-promotion programs in the workplace increased overall health care costs (Fries, 1993, 321).

Many other factors besides medical condition influence when and whether an individual will go to a health professional and to which one they go. Distance, weather, cost, time, and attitudes are factors considered, along with the weighing of benefits to be derived. Self-care competence also increases the responsibility of expectations, since judgments are based on sound information rather than on the unknown. Such informed self-referral not only can improve the appropriateness of emergency service use, but it can strengthen the role of the primary care provider as well (Kemper, 1981, 35).

There is widespread belief among physicians that primary care is overused, although most perceived health problems do not generate physician visits (Roberts, 1983, 1986). David S. Sobel, MD, told participants at a Healthcare Forum Healthier Communities Summit, in Anaheim, CA. that "a community's true primary healthcare providers should be the people themselves." He noted that 80 percent of healthcare in the United States is self-care (Hey, 1994, 70).

Dr. Sobel later explained the elasticity of demand that self-care has on the health care system in the United States. An example of elasticity of patient care would be a small decrease in medical self-care for minor illnesses causing an enormous increase in the number of outpatient visits. Dr. Sobel exclaimed

that if the United States had a 10 percent decrease in self-care, the demand for professional care would increase by 50 percent. On the other hand, if there was a 5 percent increase in self-care, the demand for professional care would decline 25 percent (Hey, 1994, 70).

A study by Rottenberg also reinforced this thought. He estimated that if only 2 percent of individuals who use over-the-counter drugs for minor illnesses were to visit their physician instead for treatment, the annual increase in the total cost of outpatient visits would be $292 million, a 62 percent increase (Vickery, 1986, 23-24). This cost would be a lot more today.

Figure 2 shows normal percentage of health care provided in the United States and Great Britain, excluding self-care. Managed care systems work to handle most health care problems at the primary care level. Where needed, primary care physicians refer problems to specialty care or tertiary care. This illustration of the health care system does not accurately show the full picture.

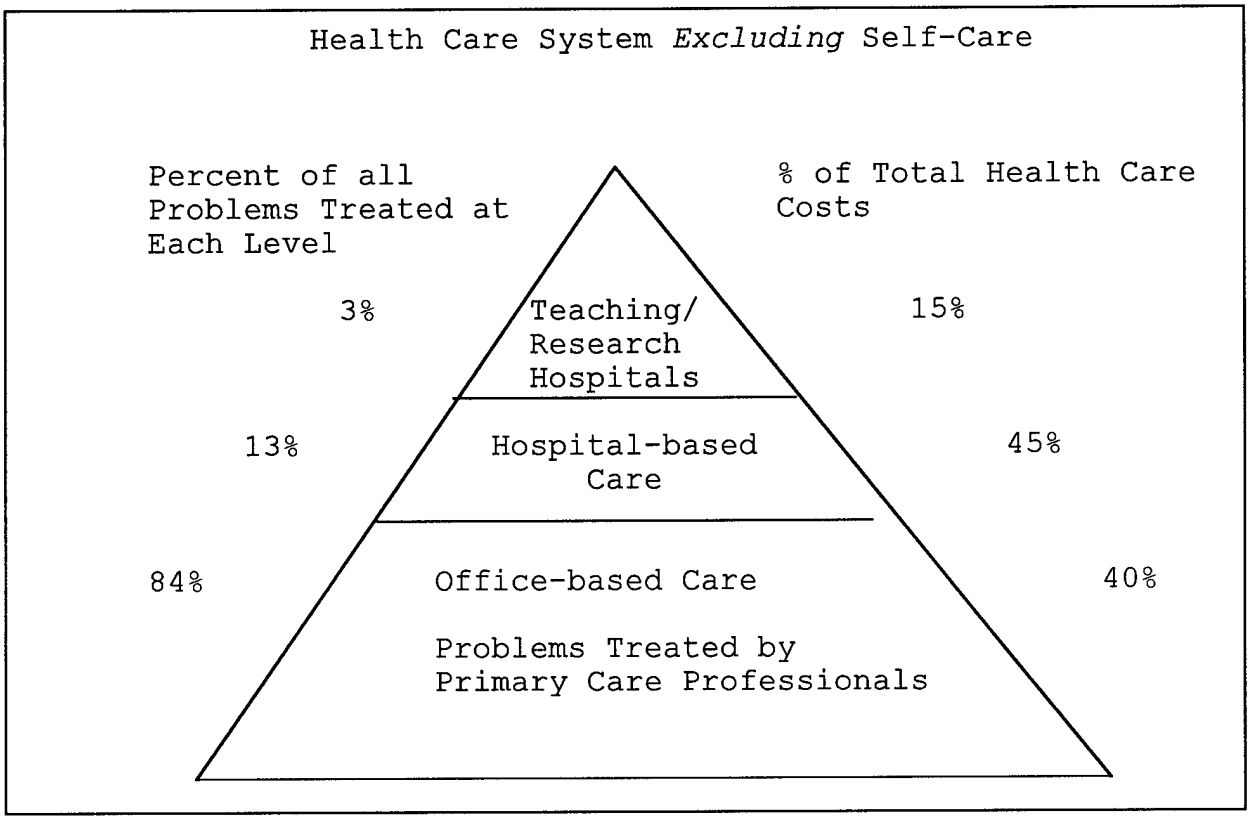

Figure 2. Health Care System Excluding Self-Care (Healthwise Instructors Guide)

Figure 3 shows the health care system in the United States and Great Britain, including self-care. According to research, about 80 percent of all health problems are managed at home by lay persons with no direct involvement with health care providers. The large bottom portion of the pyramid is medical self-care, care provided at home.

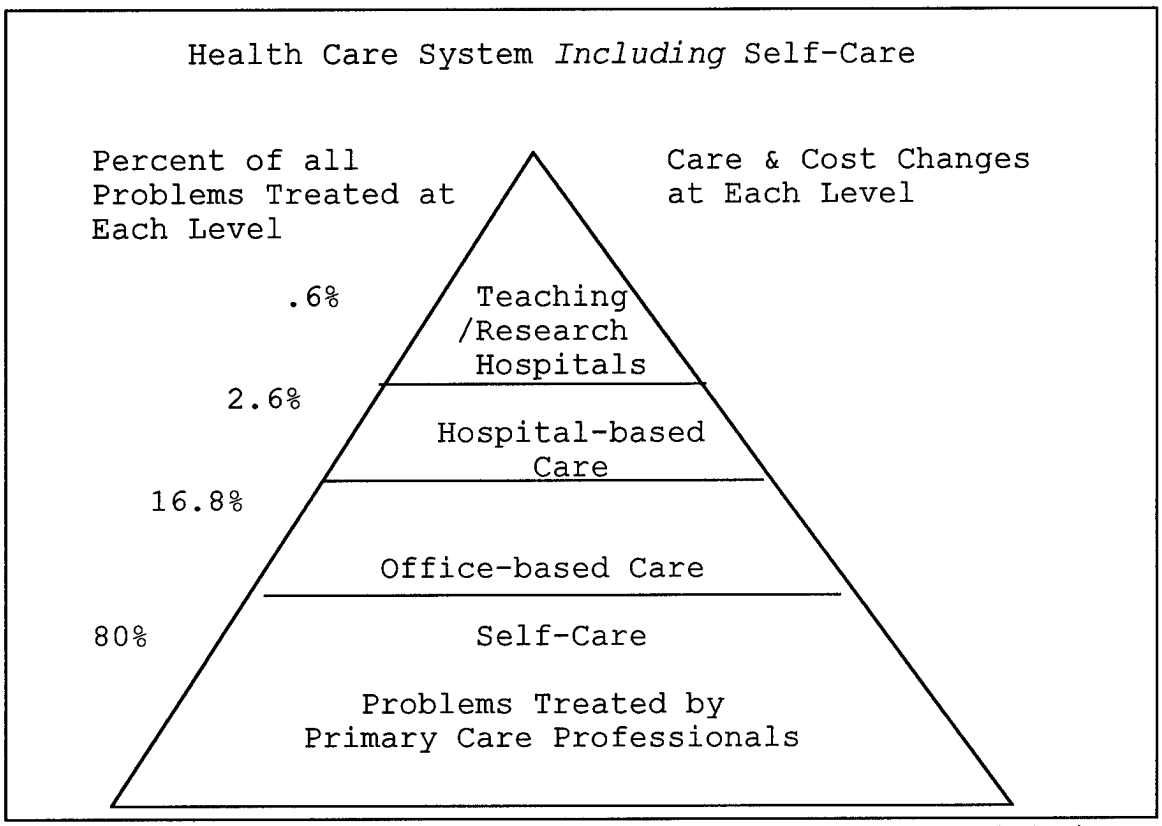

Figure 3. Health Care System Including Self-Care(Healthwise Instructors Guide)

Self-care programs have shown to produce measurable benefits. First year return on investment ratios averages around a 2 dollar savings for every dollar spent. Teaching people what they can manage at home means fewer problems reach the medical system. Savings are usually reflected in lower use rates for four primary services: emergency room, laboratory tests, specialist referrals, and outpatient visits. This may allow the medical treatment facility to reduce the cost of medical supplies and the cost of full time equivalent personnel. Improvements in

quality, satisfaction, and retention may come as a bonus (Kemper, 1990, 6).

There is also a trend in the most used algorithms in the use of the self-care manual. Comparisons of claims for people who attended Healthwise workshops with those who did not, showed claims were 15 percent to 90 percent lower for participants in five of six categories: sore throats, knee sprains, upper respiratory infections, allergies, and stomach aches. The sixth category, ear infections, showed a 50 percent increase in claims due to the fact that the book said to see the doctor for an ear infection (Sandberg, 1994, 1).

Self-care may offer the benefit of increased job satisfaction to practicing physicians. Vickery, in his research, found that a study by Cartwright revealed that the largest single cause of frustration among British physicians was "unnecessary" office visits for trivial conditions. More than half of these trivial conditions were attributed to minor illnesses that, in the physician's opinion, could have been self-treated. He also found that a study by Mechanic reported a strong inverse correlation between a general practitioner's satisfaction with practice and the percentage of visits that were estimated to be for trivial conditions (Vickery, 1983, 2952).

Dr. Bjarne Hansen, a general practitioner and research assistant at the University of Aahus in Denmark, claimed that a study of 264 patient-initiated consultations in general practice

indicated that up to 21 percent of such visits might be avoidable or deferrable if patients had an acceptable manual of self-care which described the treatment of minor illnesses. Dr. Hansen later claimed that a self-treatment manual need not attempt to teach patients to diagnose their illness, rather it should describe the appropriate treatment and clearly indicate under which circumstances the general practitioner should be consulted (Hansen, 1990, 147).

Dr. Hansen has the following recommendations for general practitioners that he believes would affect parents' illness-behavior in an appropriate manner:

1. Produce a health education booklet that told the parents:

   * the meaning of the most common symptoms among children
   * what to do
   * the circumstances in which the general practitioner should be consulted

2. Test the booklet for acceptability and comprehension in a group of parents.

3. Hand over the booklet, for example, in connection with prophylactic child examinations, as a personal message.

4. Use the booklet as the basis for a dialogue with the parents when their child becomes ill.

Milton Seifert, MD, favors the use of self-help programs, but with a caveat. "If you want to do it right, you have to do it in an individualized way. If patients feel they have become

part of an en masse campaign rather than a personalized program to keep them healthy, the book just becomes a way to distance the provider from the patient." (Voelker 1991, 2)

Even after a physician is involved, self-care plays a large role in the quality of care. When the patient presents a clear and accurate history of symptoms, the physician's diagnosis is more apt to be accurate. When the patient prepares properly for diagnostic tests, there are fewer false findings. An informed and involved patient can question the need for service and catch treatment errors before they occur. Active patient involvement results in better medical outcomes and a greater level of patient satisfaction (Mettler, 1993, 9).

Studies of symptom-related self-care have focused on a description of its prevalence. On the basis of household surveys in London, Dunnel and Cartwright and Elliot-Binns estimated that between 75 percent and 80 percent of all symptom-related care was self-provided. In 1977, Bradshaw estimated that 80 percent to 85 percent of all illnesses in Britain were managed without doctor consultations. A survey in the United States indicated that nearly half of all acute conditions are treated without physician consultations. Another study found the percentage of symptoms treated without a doctor visit to be 80 percent. One study found no difference in outcome between self-care and professional care for minor illnesses (Moore, 1980, 2317).

Several studies have examined the amount and types of naturally occurring self-care. Williamson and Danaher studied self-care interventions by patients of a general medical practice in rural England. They reported that, in this population, 79 percent of the symptoms were cared for without a physician visit. For those who did see a physician, 60 percent had provided some form of self-care before the visit. Only 9 percent of the total symptoms were managed without reported self-care (Kemper, 1993, 31).

Demers and colleagues studied all the health problems recorded by 107 subjects over a 3-week period. They found that less than 6 percent of the problems received professional medical care. Of the 348 recorded illness episodes of health problems, 24.7 percent were not treated, 67.6 percent were treated with self-initiated self-care measures and 2.3 percent were treated with self-care measures after telephone advice from a health professional (Kemper, 1993, 31).

Many health care administrators have been reluctant to make substantial investments in self-care education without a base of factual evidence indicating bottom-line cost reductions (Kemper, 1982, 710). Many controlled evaluations of comprehensive self-care programs have been reported in medical literature. Most published studies report a reduction in visits to physicians and a decrease in costs. Although these studies and others vary in size, specific measures and levels of significance, they all

point to consistent cost savings and fewer outpatient visits resulting through the use of self-care. Discussed below are studies performed by Insurers, employers, the military, and Health Maintenance Organizations (HMOs).

The first example was a two-year study sponsored by Wisconsin Education Association Insurance Group and conducted by the Center for Corporate Health. They tested the effectiveness of a 24-hour nurse counseling hotline and self-care education. One group of 24,000 members received a self-care manual and newsletter, while the second group received both the self-care program and access to the nurse counseling hotline. The study concluded that although the self-care program reduced costs ($2.40 per dollar), a greater cost reduction is possible with a more extensive nurse counseling and self-care program ($4.75 per dollar invested) (Goldstein 1995, 144).

Other studies also confirm positive findings for large employers. Lorig and her colleagues reported significant reductions (17 percent for Blue Cross of California employees and 7.2 percent for all participants) in outpatient visits using similar interventions in a study involving a large number of employees of California corporations (Lorig, 1985, 1044).

Additionally, a randomized-controlled study of the Healthtrack III program for all employees and retirees within the California Public Employees' Retirement System (PERS) was performed by evaluating the self-reported health risk changes by

respondents after receiving self-care and educational materials. Claims results for respondents showed a significantly lower increase in costs for employees and retirees using the self-care manuals in comparison to the control groups (Fries, 1994, 222).

Finally, Healthtrac's Bank of America study, after evaluating a self-care and health promotion program for retirees, showed an estimated reduction in direct and indirect costs of 11 percent compared to an increase of 6.3 percent in the control group (Leigh, 1992, 1201).

Other studies have begun to prove the cost-effectiveness of self-care for the military as well. A study by three Air Force medical clinics focused on reducing unnecessary clinical and emergency room visits. Self-care manuals were distributed to regular clinic visitors in an effort to provide an educational program to encourage appropriate use of services. Over a six-month period, participants reported a 16 percent reduction in clinical visits and a 28 percent reduction in emergency room visits (Healthtrack Program Overview, no date, 17).

One study by an HMO included a prospective, randomized, and controlled trial of self-care intervention that was conducted within their Medicare population. A statistically significant decrease of 15 percent in total medical visits was found in the experimental group as compared with the control group. Medical visit decreases resulted in a cost avoidance of $36.65 per household in the experimental group for a benefit-cost ratio of

$2.19 avoided for every dollar spent on intervention (Vickery, 1988, 580).

Another HMO study was the Cooperative Health Education Project (CHEP). This study was a large, randomized, controlled trial of self-care educational interventions. The results were a 17 percent reduction on outpatient visits and a 35 percent reduction in visits for minor illnesses without any evidence of adverse impact on health due to these omitted visits. This was a savings of $2.50 to $3.50 for every dollar spent on the program (Vickery, 1986, 24).

Additionally, a study was performed by Kaiser Permanente. They determined that the use of the Healthwise Handbook by healthcare beneficiaries has shown to result in reducing outpatient visits. The Kaiser Permanente Fairfield facility sent their 30,000 healthcare beneficiaries a copy of the Healthwise Handbook. The goal of this project was to increase member confidence and efficacy in self-care, improve member satisfaction with the HMO, decrease inappropriate utilization, and increase provider support and reinforcement of self-care skills (Hey, 1994, 70).

The use of the Healthwise Handbook at the Fairfield facility has increased members' confidence in self-care and has reduced the utilization of outpatient visits. Overall, the Fairfield facility has seen a 5 percent decline in acute care visits, a 1 percent decline in overall visits, and a 5 percent decline in

phone calls. Based on these results, Kaiser is planning to implement this program throughout it's Northern California region, sending the Healthwise Handbook to 1.2 million households (Hey, 1994, 70-71).

These impressive programs in self-care support the potential for impressive benefits at Madigan. The benefits of a self-care manual may include enabling participants to save time and money by avoiding unnecessary trips to the clinic, reducing medical care cost to the medical treatment facility, and increasing physician satisfaction.

Purpose

The purpose of this project is twofold. The first purpose of this project is to analyze primary outpatient visits by Madigan's Prime and Nonprime healthcare beneficiaries and determine whether the self-care manuals provided to the beneficiaries are having an impact on the number of outpatient visits.

The second purpose is to take into consideration the total cost of the self-care manuals and the change in outpatient visits to determine whether the impact of the self-care manuals are creating a cost savings for Madigan.

CHAPTER 2

METHODS AND PROCEDURES

This study will be broken down into three phases. The first phase will consist of the primary and most important data for the study. It will be a comparison study on the utilization of the Healthwise Handbook, a self-care manual, by Madigan's beneficiary population. The second and third phase of this project will consist of survey information provided by myself and Market Metrics.

The first phase of this study will be an objective review of a sample population's trend in the number of outpatient appointments. These visits will be tracked by Madigan's Composite Healthcare Computer System (CHCS).

Approximately 500 health care beneficiaries between the ages of 0-54, and are impaneled in the Family Practice Clinic at Madigan, will be studied. The dependent variable is the total number of outpatient visits. The independent variable will be the time frame (June 1994 through January 1995 and June 1995 through January 1996).

The baseline data will consist of the total amount of 1994 outpatient appointment visits in the Family Practice Clinic from the months of June 1994 through January 1995 for the sample population.

The follow-up data will be the total amount of 1995 outpatient appointment visits in the Family Practice Clinic from the 500 health care beneficiaries assigned. This data will be taken from the months of June 1995 through January 1996.

In addition, an analysis of variance (ANOVA) will determine whether gender or age has any effect on the change in the number of outpatient visits. All subjects will be enrolled in TRICARE Prime since it is assumed that all TRICARE Prime enrollees received a copy of the Healthwise Handbook.

Usage trends and overall effectiveness will be determined through a comparison of the baseline data (1994 data) and the follow-up data (1995 data) to control for extraneous variables. Analysis will be completed on both the baseline and follow-up data.

In addition to the data collected from the computer systems, the second phase of the study will consist of secondary information that will be gathered from a survey of a sample population of 200 healthcare beneficiaries in the Family Care Service of the Department of Family Practice. Subject members will report if they use the Healthwise Handbook, and if so, the total number of outpatient visits saved by using the Healthwise Handbook. These visits will include the Family Practice Department, the Emergency Room, and any visits to a civilian provider. This information will be tracked over an eight month increment from June 1995 through January 1996.

The change in the utilization data will be compared to the cost of a single outpatient visit for the emergency room, family practice clinic, and the civilian medical treatment facility. The average cost of an outpatient clinical visit at Madigan will be calculated through the use of the Medical Expense and Performance Reporting System (MEPRS) data. Additionally, the unit cost of the Healthwise Handbook will be included in the overall cost of the change in utilization patterns through the use of the Healthwise Handbook.

The study group will be also asked whether they would recommend the Healthwise Handbook to others. Finally, patients will be asked if they felt that access into the Family Practice Clinic was easier due to the advent of a Primary Care Manager (PCM) and the TRICARE Regional Appointment Center (TRAC). These changes have occurred due to the transition into TRICARE. The subjects who cannot compare the differences in the PCM and TRAC in this region, pre and post TRICARE, will be asked to compare it to the system they were using before moving to this region. Family size was originally asked in order to break out individual costs per use of the Healthwise Handbook. The cost of the Healthwise Handbook was later changed to be based on the entire family for the surveyed information. These results have implications for the effectiveness of self-care in decreasing utilization and subsequently resource consumption for outpatient visits. Additionally, it can increase patient awareness which

can increase both patient and provider satisfaction. The patient survey is partially founded upon several previous surveys performed by other corporations (i.e. Healthnet, Aetna, and Comprecare) that wanted to measure their own utilization rates of the Healthwise Handbook.

The third phase of the study will consist of information gathered by Market Metrics, a consulting firm hired by the Department of Defense. Market Metrics will ask healthcare beneficiaries at Madigan whether and how often their primary care provider incorporates the Healthwise Handbook into their visit with the patient. In addition, these beneficiaries will disclose their usage of the Healthwise Handbook. Since the second and third phases of this study are surveyed information gathered that is based on a patient's subjective recollection, this information will be used as qualitative data that will be used to complement the primary data.

Validity and Reliability

CHCS data is regularly utilized by most military MTF's as a means of data collection and decision management. The survey of healthcare beneficiaries at Madigan will present the most difficulty in the data base systems listed above in the military medical community.

Threats to the comparison do exist, however. One concern is the potential bias from subject awareness of the experiment (Hawthorne effect). This bias will be avoided since the sample populations will be unaware that their visit behavior is being monitored. All the data gathered about visit behavior will be retrospective data.

Ethical Considerations

Throughout the conduct of this project, a careful effort will be made to maintain a standard of ethics when handling raw data involving personal information from surveys. The confidentiality of all information will be protected and only pertinent demographic and resource utilization data will be collected. Where respondents elect to provide additional data, the information will be protected and otherwise treated strictly confidential by the investigator.

CHAPTER 3

RESULTS

The study was broken down into three phases. The first phase was the primary data that was gathered in CHCS that compared the total number of outpatient visits between June 1994 through January 1995 and June 1995 through January 1996.

The second phase of this study consisted of secondary information gathered from a survey of patients in the Family Care Service of the Department of Family Practice. The third phase of this study consisted of information gathered by Market Metrics, a government contracted monitoring company. Market Metrics surveyed Madigan's patients about their health care provider's utilization and promotion of the Healthwise Handbook while treating that patient.

The findings in regard to the change in utilization rates in the Family Practice Clinic from June 94 through February 95 and June 95 through February 96 show an increase in outpatient visits. These results are inconsistent with results that were described earlier from previous studies. While most of these previous studies have shown a decrease in outpatient visits, this study has actually shown an increase of three-tenths of one outpatient visit. In short, the Healthwise Handbook has not been proven to

be an effective tool in reducing outpatient visits in the Department of Family Practice at Madigan Army Medical Center.

The principal analytic technique used in providing the comparison between outpatient visits in the Family Practice Department was a Two-Factor Repeated Measures ANOVA. The sample size of the study equaled 500. Approximately 67 percent of the subjects (or 337) were female, while approximately 33 percent (or 163) were male. This was due to the fact that a majority of the active duty dependents that seek care in the Department of Family Practice are female (61%). Results are shown below in Table 3. The mean visits for female in 1994 was 4.8 ± 22.1. The mean visits for males was 4.4 ±19.13. The overall mean difference was 0.496. This was not statistically significant (P-Value = 0.2588). These results are shown in Tables 1 and 2.

Group Info for 94 DATA
Grouping Variable: M/F

	Count	Mean	Variance	Std. Dev.	Std. Err
F	337	4.846	22.119	4.703	.256
M	163	4.350	19.130	4.374	.343

Table 1. Group Information for 94 Data

Unpaired t-test for 94 DATA
Grouping Variable: M/F
Hypothesized Difference = 0

	Mean Diff.	DF	t-Value	P-Value
F, M	.496	498	1.131	.2588

Table 2. Unpaired T-Test for 94 Data

The utilization data that was retrieved from CHCS for this study was both unexpected and enlightening. Considering earlier research that was expanded upon in the literature review, a substantial reduction in outpatient visits had been expected. Surprisingly, the change in the total number of outpatient visits between June 1994-January 1995 and June 1995-January 1996 actually increased from 4.684 to 4.996. This was an increase of 0.312 of a visit. The P-Value for this change was 0.3150, which was not statistically significant. The mean number of visits for 1994 and 1995 are shown in table 3. The pair t-test statistical test is shown in table 4, and the means were not significantly different.

Descriptive Statistics

	Mean	Std. Dev.	Std. Error	Count	Minimum	Maximum	# Missing
94 DATA	4.684	4.600	.206	500	0.000	34.000	0
95 DATA	4.996	6.937	.310	500	0.000	64.000	0

Table 3. Means Table for Year

Paired t-test
Hypothesized Difference = 0

	Mean Diff.	DF	t-Value	P-Value
94 DATA, 95 DATA	-.312	499	-1.006	.3150

Table 4. Paired T-Test

After analyzing the overall data, data was stratified by gender. The results were very surprising. The data showed that the change in outpatient visits was statistically significant when comparing the male versus female visits (P-Value = 0.0067). The average of outpatient visits for males was 3.9 ± 4.5 while the average for females was 5.3 ± 6.4. The average number of visits for males and females are shown in Table 5 and graphed in Figure 4.

Means Table for Year
Effect: M/F

	Count	Mean	Std. Dev.	Std. Err.
F	674	5.294	6.416	.247
M	326	3.902	4.461	.247

Table 5. Means Table for Year M/F

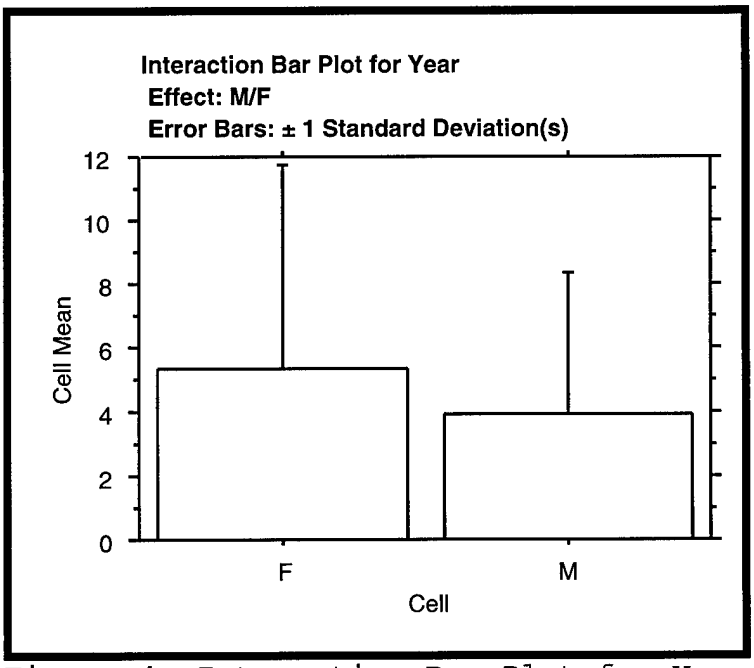

Figure 4. Interactive Bar Plot for Year M/F

The overall mean age was 23.2 ± 13.8. The mean age for the female subjects was 23.2 ± 13.9 while the mean age for the male subjects was 11.3 ± 9.4. Male active duty dependents seem to be mainly children while female active duty dependents seem to be a mix between children and women. These results are shown in Table 6.

Descriptive Statistics
Split By: M/F

	Mean	Std. Dev.	Std. Error	Count	Minimum	Maximum
AGE, Total	19.324	13.815	.618	500	1.000	52.000
AGE, F	23.211	13.942	.759	337	1.000	52.000
AGE, M	11.288	9.399	.736	163	1.000	47.000

Table 6. Descriptive Statistics: M/F Age

Of interest was the variance in outpatient visits between gender and year. The mean for the number of outpatient visits for the female subjects increased from 4.846 in 1994 to 5.742 in 1995. This was an increase of almost one complete outpatient visit (0.896).

Conversely, the mean for the number of outpatient visits for the male subjects decreased from 4.350 in 1994 to 3.454 in 1995. This was a decrease of almost one complete outpatient visit (-0.896). The P-Value for this change in both gender's outpatient visits was 0.0067, which was statistically significant. This information will become very prominent in explaining the results in the discussion phase of this study. The two-factor repeated measures ANOVA results table is shown in table 7. The means for each gender, year group is shown in table 8 and graphed in Figure 5.

ANOVA Table for Year

	DF	Sum of Squares	Mean Square	F-Value	P-Value
M/F	1	425.707	425.707	9.576	.0021
Subject(Group)	498	22138.693	44.455		
Years	1	24.336	24.336	1.025	.3119
Years * M/F	1	176.368	176.368	7.425	.0067
Years * Subject(Group)	498	11829.296	23.754		

Table 7. ANOVA Table for Year

Means Table for Year
Effect: Years * M/F

	Count	Mean	Std. Dev.	Std. Err.
F, 1994	337	4.846	4.703	.256
F, 1995	337	5.742	7.741	.422
M, 1994	163	4.350	4.374	.343
M, 1995	163	3.454	4.515	.354

Table 8. Means Table for Year M/F 94/95

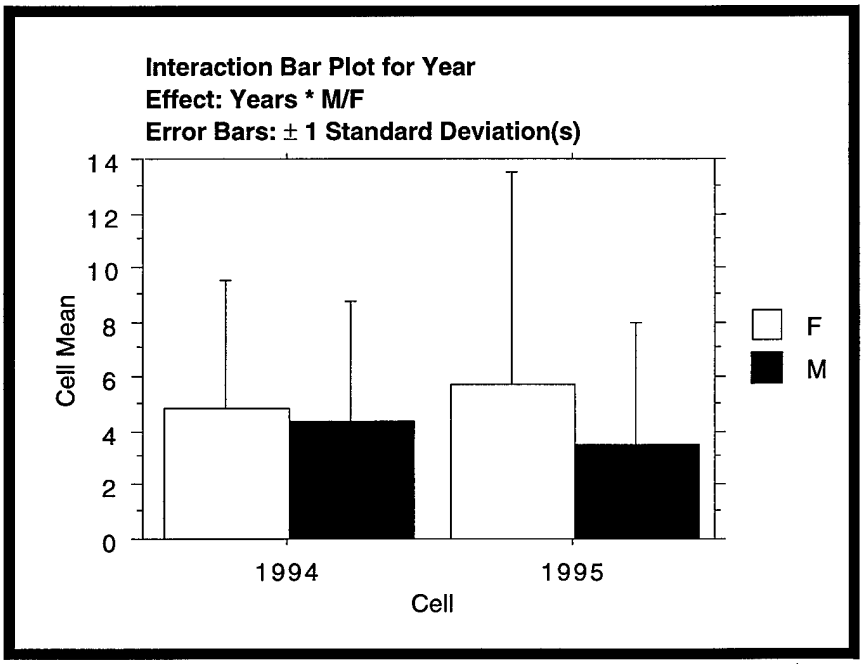

Figure 5. Interactive Bar Plot for Year 94/95

When the data was stratified by age, there was no significance between overall age and the change in outpatient visits ($p = 0.0803$). However, there was a reduction of 1.083 visits between younger subjects (ages' 1-5) in comparison between 1994 and 1995 data. There was also an increase in outpatient visits for older patients (ages' 36 and over). While this

information was of interest, neither change in age group was statistically significant. The two-factor repeated measure ANOVA for age group and year group is shown in Table 9. The mean for each age group/year group is shown in Table 10 and graphed in Figure 6.

ANOVA Table for Year

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Age gp	9	2239.012	248.779	5.998	<.0001
Subject(Group)	490	20325.388	41.480		
Years	1	24.336	24.336	1.025	.3119
Years * Age gp	9	369.074	41.008	1.727	.0803
Years * Subject(Group)	490	11636.590	23.748		

Table 9. ANOVA Table for Year

Means Table for Year
Effect: Years * Age gp

	Count	Mean	Std. Dev.	Std. Err.
1 - 5 yo, 1994	96	5.010	4.578	.467
1 - 5 yo, 1995	96	3.927	4.473	.456
6 - 10 yo, 1994	86	2.965	2.418	.261
6 - 10 yo, 1995	86	3.174	4.165	.449
11 - 15 yo, 1994	69	3.406	3.318	.399
11 - 15 yo, 1995	69	3.812	4.894	.589
16 - 20 yo, 1994	47	3.702	4.338	.633
16 - 20 yo, 1995	47	3.681	4.686	.684
21 - 25 yo, 1994	25	6.000	5.859	1.172
21 - 25 yo, 1995	25	10.400	13.509	2.702
26 - 30 yo, 1994	42	5.405	5.037	.777
26 - 30 yo, 1995	42	5.286	5.558	.858
31 - 35 yo, 1994	57	6.702	5.510	.730
31 - 35 yo, 1995	57	6.895	7.497	.993
36 - 40 yo, 1994	34	5.382	6.372	1.093
36 - 40 yo, 1995	34	6.853	12.307	2.111
41 - 45 yo, 1994	25	6.440	4.454	.891
41 - 45 yo, 1995	25	6.680	6.012	1.202
46 yo +, 1994	19	4.947	3.808	.874
46 yo +, 1995	19	7.211	9.265	2.126

Table 10. Means Table for Year & Age Group 94/95

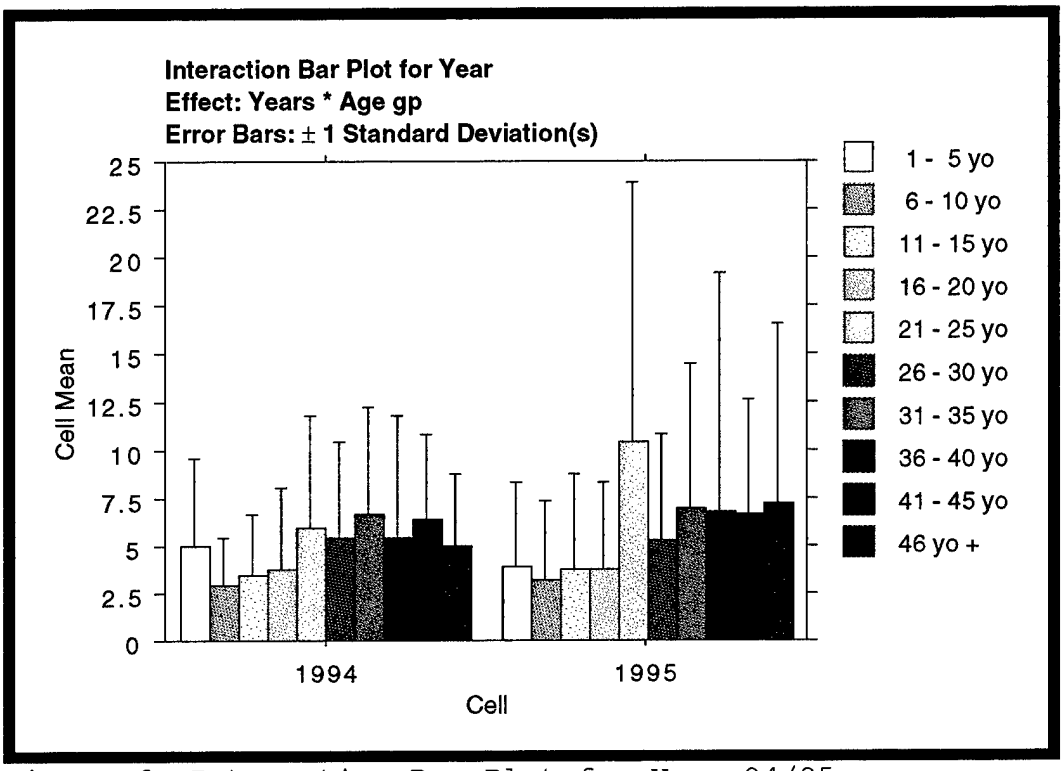

Figure 6. Interaction Bar Plot for Year 94/95

The mean change between outpatient visits in 1994 and 1995 for each age group is shown in Table 11 and graphed in Figure 7

Means Table for Δ in Visits
Effect: Age gp

	Count	Mean	Std. Dev.	Std. Err.
1 - 5 yo	96	-1.083	5.534	.565
6 - 10 yo	86	.209	4.443	.479
11 - 15 yo	69	.406	5.462	.658
16 - 20 yo	47	-.021	4.632	.676
21 - 25 yo	25	4.400	12.933	2.587
26 - 30 yo	42	-.119	7.533	1.162
31 - 35 yo	57	.193	8.774	1.162
36 - 40 yo	34	1.471	9.743	1.671
41 - 45 yo	25	.240	5.600	1.120
46 yo +	19	2.263	7.936	1.821

Table 11. Means Table for 1994 to 1995 change in visits by Age Group

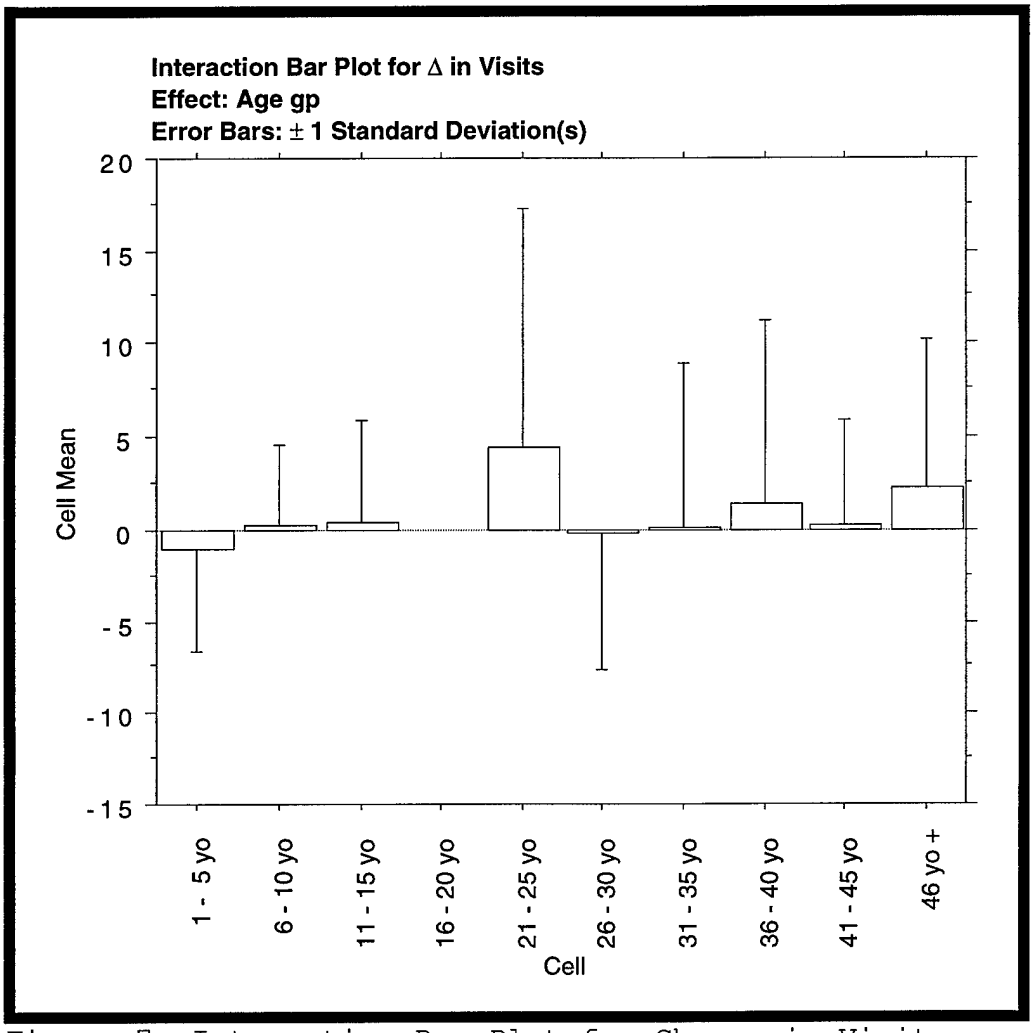

Figure 7. Interactive Bar Plot for Change in Visits

Additionally, Figure 8 graphs the change in the total number of outpatient visits, 1994 versus 1995, for each subject and their age.

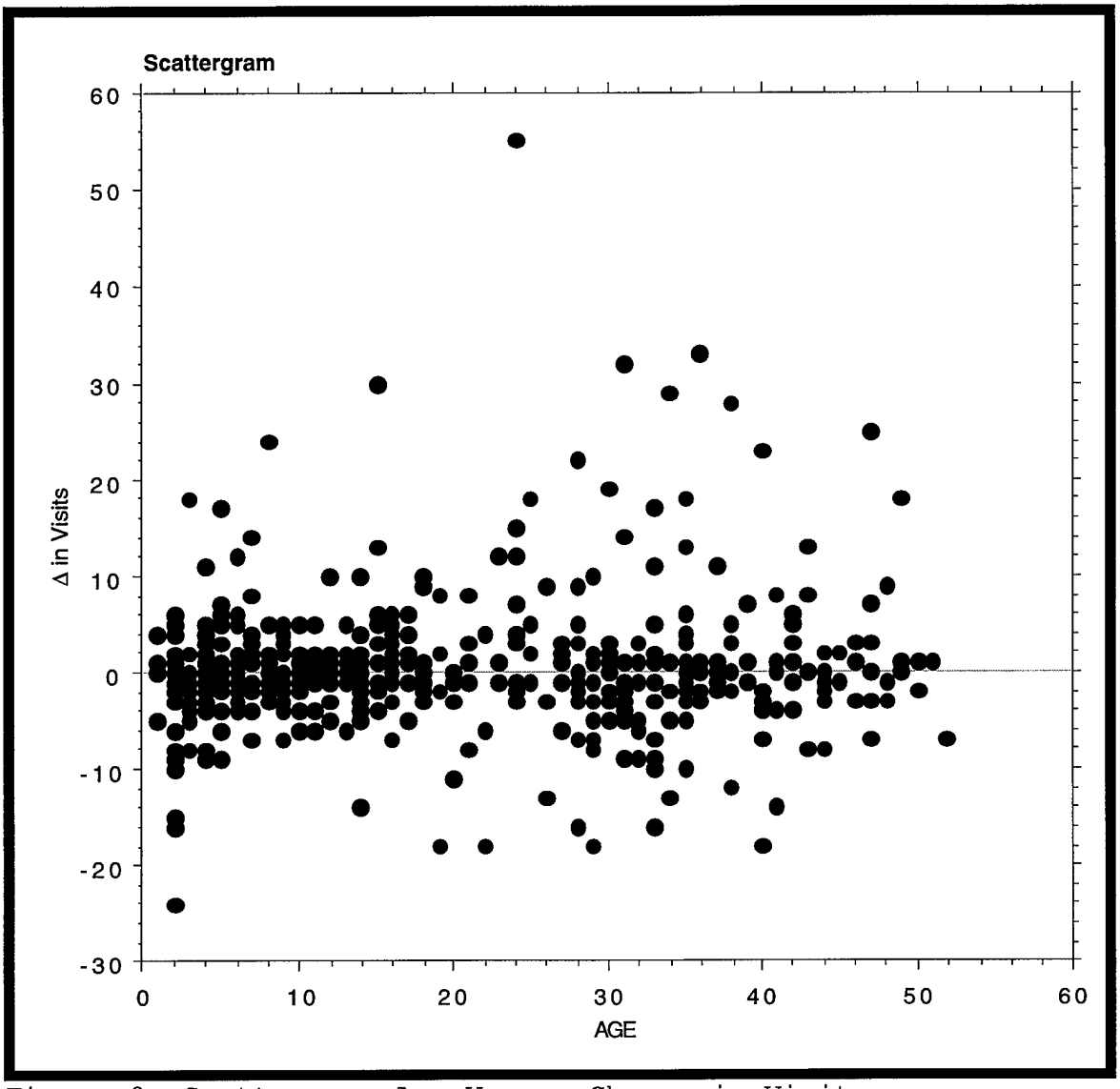

Figure 8. Scattergram Age Versus Change in Visits

The change in the utilization data was then compared to the cost of a single outpatient visit for the emergency room, family practice clinic, and the civilian medical treatment facility. The average cost of an outpatient clinical visit at Madigan was calculated through the use of the Medical Expense and Performance Reporting System (MEPRS) data.

The average cost for a family practice visit was approximately $124 while the average cost for a visit in the emergency room was approximately $130. These costs were averaged out by totaling the direct costs that were included in the following expenses for each clinical area: military and civilian compensation; military benefits; travel and transportation of persons; education and training; other miscellaneous contracts; medical supplies; other supplies; and medical equipment; ancillary expenses; and administrative overhead. These totals were then divided by the total number of outpatient visits for each clinical area. The result was the average cost per outpatient visit.

The expense equated for a civilian medical facility was calculated by taking the Champus Maximum Allowable Charge (CMAC) for both a new intermediate visit ($61.79) and a follow-up intermediate visit ($34.45). Also, after talking with various persons in the Department of Family Practice, it was expected that there would be an average of one follow-up visit per every four new visits. The costs for these types of visits were then averaged out by multiplying the price of a new visit by four, adding the cost of one intermediate follow-up visit, and dividing the total amount by five. After calculating these figures, an average cost of $56.32 was attained. These costs are broken out in Table 12.

	Unit Cost Per Type of Visit		
	Family Practice	**Emergency Room**	**Primary Care CMAC**
Direct Costs	$ 2,935,399.00	$ 4,028,321.00	
Ancillary Costs	$ 2,412,021.09	$ 2,514,961.65	
Overhead Costs	$ 1,616,415.22	$ 1,843,676.29	
Workload (Visits)	56,122	64,579	
Unit Cost	$ 124.08	$ 129.87	$ 56.00

Table 12. Unit Cost Per Type of Visit

Additionally, the unit cost of the Healthwise Handbook was included in the overall cost of the change in utilization patterns through the use of the Healthwise Handbook. The total cost for the Healthwise Handbook was $796,757 over a five year period. The estimated cost to provide the Healthwise Handbook was approximately $7.70 per family based on figures from option year one. With an average of 2.1 persons per family, this cost averages out to be approximately $3.67 per person.

When the variable of average cost per visit in the Department of Family Practice was added into the equation, the answer was an increased cost per patient. Average cost per patient was equated by multiplying the average cost per visit in the Family Practice Clinic ($124.08), that was provided by MEPRS, by the increased visits (0.312). Results from this calculation show an increased cost of $38.71 per patient over an eight month period or

approximately $51.49 annually. Adding in the additional $3.67 for the Healthwise Handbook, the increased cost per patient is approximately $55.16 annually.

Secondary Results

The second phase of the study included surveying 200 subjects to randomly find out whether the Healthwise Handbook was a useful tool in decreasing the number of outpatient visits in the Family Practice Clinic. A number of secondary analyses were completed through the use of a survey. Respondents were asked the following questions: if they used the Healthwise Handbook; whether the Healthwise Handbook reduced the number of primary care visits, emergency room visits, or visits to an outside provider; and if they would recommend the Healthwise Handbook to other people; and whether the TRAC had given them greater access to the Family Care Service. These results are presented as suggestions for further research.

Table 13 below categorizes visit rate changes through the use of the Healthwise Handbook. The survey data were both unexpected and enlightening. Results from the survey differ substantially from the data retrieved from CHCS. Survey results showed that there was an overall average of 1.651 outpatient visits saved per family from the usage of the Healthwise Handbook. The majority of

these visits saved was from the subject's primary care physician (0.861). Additionally, there were outpatient visits saved in the Emergency Room (0.530) and from a civilian provider (0.259).

Descriptive Statistics

	Mean	Std. Dev.	Std. Error	Count	Minimum	Maximum	# Missing
Saved Primary Care Visit	.861	1.361	.106	166	0.000	5.000	0
Saved ER Visit	.530	1.209	.094	166	0.000	5.000	0
Saved Outside Visit	.259	1.003	.078	166	0.000	5.000	0
Total Saved Visits	1.651	2.966	.230	166	0.000	15.000	0

Table 13. Descriptive Statistics

Additionally, a simple calculation that multiplies each percentage of saved visit by their average cost (0.861 * $124.08, + 0.530 * $129.87, + 0.259 * $56.32) and subtracting the total cost of the Healthwise Handbook ($7.70) showed a savings of approximately $182.55 per family.

Subjects were also asked whether or not they use the Healthwise Handbook to provide them information concerning minor illnesses that occur in their family. Approximately 77 percent said that they are currently using the Healthwise handbook for this information.

Additionally, subjects were asked whether they would recommend the Healthwise Handbook to others. Results from this question were very encouraging. Approximately 80 percent of the

people surveyed said that they would recommend the Healthwise Handbook to others.

Finally, subjects were asked whether they felt that the new centralized outpatient appointment system has given them greater access to their primary care provider. The reasoning behind asking this question was to determine if the increase in outpatient visits could be partially due to the patients feeling that they had greater access to their primary care provider. The results showed that 48 percent felt that they had greater access.

The third phase of the study included analyzing data provided by market metrics that measured the effectiveness of the Healthwise Handbook. Market Metrics, a monitor group company contracted out by the Department of Defense, questioned various health care beneficiaries at Madigan Army Medical Center about the usefulness of the Healthwise Handbook and whether their primary care manager is incorporating the self-care manual into their practice.

Market Metrics found that active duty members stated that 63 percent of the time their primary care manager used the Healthwise Handbook not at all, 8 percent not very much, 16 percent somewhat, and 3 percent a great deal.

Dependents of active duty members had somewhat similar results. Respondents exclaimed that 78 percent of the time their

primary care manager used the Healthwise Handbook not at all, 5 percent not very much, 7 percent somewhat, and 1 percent a great deal.

Retirees and dependent of retirees also had similar results. They stated that 71 percent of the time their primary care manager did not use the Healthwise Handbook not at all, 5 percent said not very much, 6 percent said somewhat, and 3 percent said a great deal. These results are displayed in Figure 9.

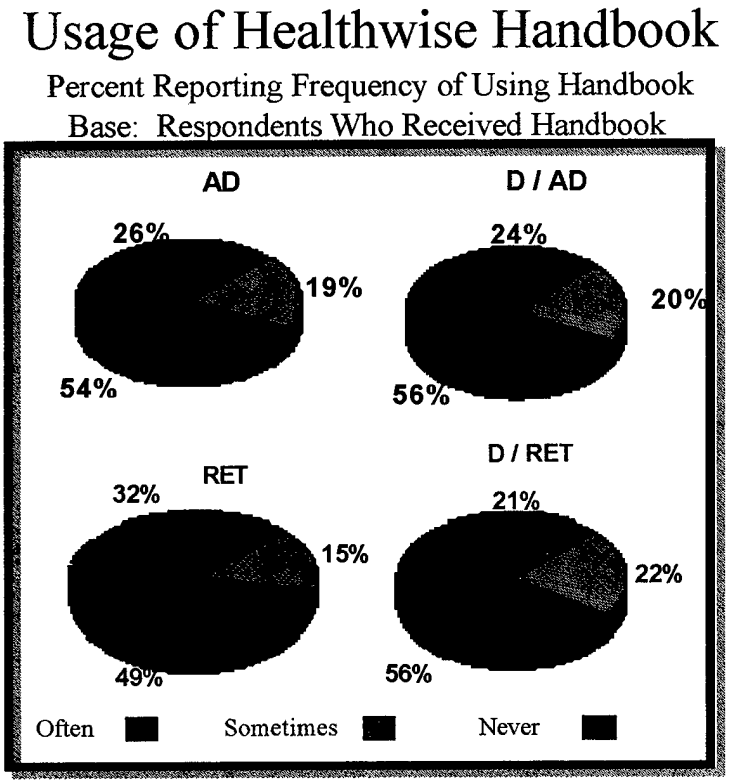

Figure 9. Usage of the Healthwise Handbook

Additionally, health care beneficiaries were questioned about their usage of the Healthwise Handbook. Results were based on either often, sometimes, or never. 19 percent of the active duty

beneficiaries stated that they use the Healthwise Handbook often, 54 percent said sometimes, and 26 percent said never. 20 percent of active duty dependents said often, 55 percent said sometimes, and 24 percent said never. 15 percent of retirees said often, 49 percent said sometimes, and 32 percent said never. Finally, 22 percent of dependents of retirees said often, 56 percent said sometimes and 21 percent said never. These results are displayed in Figure 10.

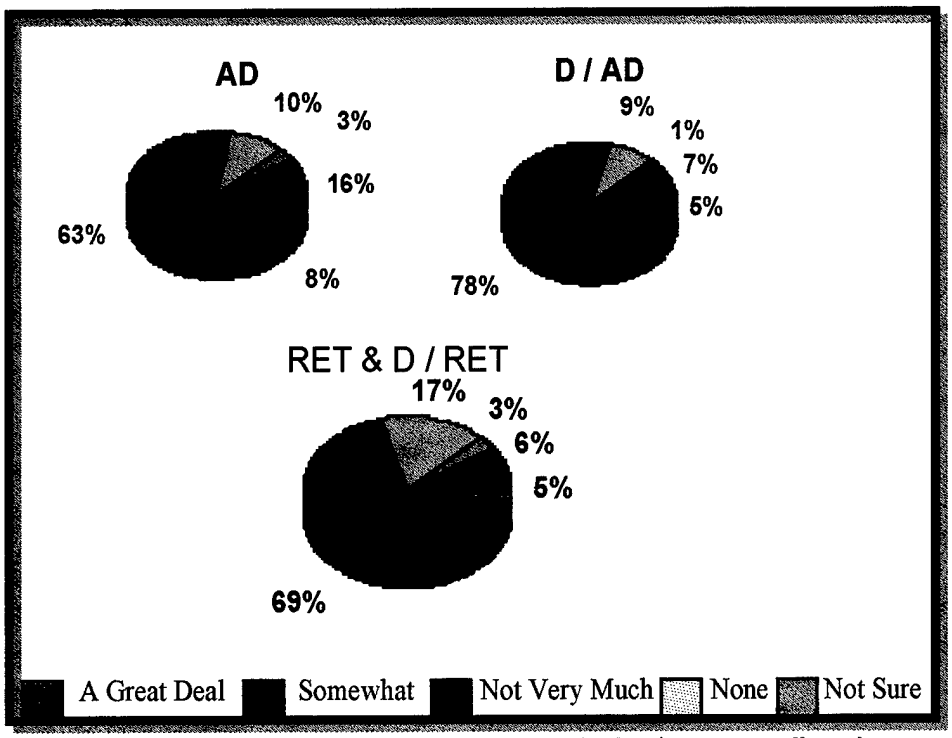

Figure 10. PCM Usage of the Healthwise Handbook

CHAPTER 4

DISCUSSION

The primary question regarding self-care programs is whether the health care institution and patients benefit, either by reduced outpatient visits and lower medical expenses or by better health. Although the study was not able to address the second half of this question, visits and expenses were addressed.

The bottom line is the impact of the Healthwise Handbook on outpatient visits in the Department of Family Practice at Madigan. As stated earlier, the Healthwise Handbook has not been proven to be an effective tool in reducing outpatient visits in the Department of Family Practice at Madigan Army Medical Center. The most significant finding of this study is that there has been no significant changes in the overall number of visits to a physician. Utilization rates have been analyzed for an eight month period preceding book distribution and compared with the eight month follow-up period after book distribution. The results of my detailed analysis confirm this.

As noted earlier in the results section, outpatient visits actually increased in 1995 in comparison to 1994 data. If you compare genders, though, the results are startling. Females had an increase of almost one complete outpatient visit (.896), while males had a decrease of almost one complete visit (-.896). This

leads me to believe that gender is instrumental in the outcome of this study.

My proposed explanation for the increase in outpatient visits for the female gender and outpatient visits in general is possibly the Women's Health Initiative that started at Madigan last year. The distribution of the Healthwise Handbook may have been partially responsible for the increase in patient visits, but not as directly as the Women's Health Initiative.

The objective of the Women's Health Initiative was to increase the awareness level of preventive services for women, and in turn, increase certain preventive services for women. The Department of Family Practice has an aggressive Women's Health Initiative coordinator that works with the patient's primary care provider in educating women on their recommended health care screenings. Additionally, she follows up with the patient on any abnormal results and offers suggestions or advice in order to guarantee that the patient will receive the quickest and best care possible.

As a result of the Women's Health Initiative, the Department of Family Practice at Madigan has performed approximately 4000 pap smears, 500 colposcopy procedures and 600 mammography procedures in 1995. In 1994, the Department of Family Practice performed only approximately 3000 pap smears and 460 colposcopy procedures and did not perform any mammography procedures.

These figures show an increase of approximately 1,640 visits for women's preventive care in 1995. In 1994, the total number of outpatient visits in the Department of Family Practice was 65,027. The total number of outpatient visits for 1995 was 70,233. This was an increase of approximately 5,206 visits. These figures reveal that the increased visits for the Women's Health Initiative made up approximately 31.5% of the total increase in outpatient visits.

Also notable in the results section is that the highest increases in outpatient visits under the age subgroups were from subjects of the age of 36 and over. These are the ages when women become more interested in preventive measures of healthcare. Additionally, a study on the Nurse Advice Line for Region 11 noted that eight of the top ten questions were about women's issues. It seems that self-care and women's issues have a very high correlation. Unfortunately, the Women's Health Initiative may have acted as an extraneous variable in this study.

I mention that the Healthwise Handbook may be partially responsible because the handbook emphasizes preventive care for women's issues. Because of this, women will be seen more often concerning their various preventive screenings and follow-up. In many cases the Healthwise Handbook will tell the patient to seek care, especially concerning preventive care. In fact, there have been studies that have shown that the Healthwise Handbook has

increased outpatient visits (in a retrospective study, Berg and LoGerfo examined patient symptoms' logs and determined that there would have been an increase in physician visits for upper respiratory infections if the self-care manual's algorithms had been followed precisely (Berg, 1979, 535)).

There has also been a decrease in the number of outpatient visits for males (-0.896). There is also a strong correlation in my study of subjects being a male and also being a child (see Table 6). The Healthwise Handbook has shown to be very effective in addressing the health care needs of children. From reviewing the results of the study, it was noted that outpatient visits for children between the ages of 1 through 5 decreased by over one complete visit (-1.083).

These results seem to reinforce my earlier belief that self-care is ideal for parents of small children. For example, a young parent may have a child crying in the night with a slightly elevated temperature. The algorithms in the Healthwise Handbook act as an excellent guide for young parents in deciding whether to bring their child into the hospital for care.

Conversely, though, the decrease in outpatient visits may be due to another reason. Recently there has been an increasing number of children, empaneled by the Department of Family Practice, but seeking care in the Department of Pediatrics. Results for Pediatrics show that scheduled outpatient visits have increased from 1101 for the months of May-December 1995, to 1446

for the months of Jan-May 1996. These figures do not include visits from the Department of Pediatrics' walk-in evening clinic (figures could not be obtained). Although this change is not enormous, it may partially show why the average number of outpatient visits by children in the Department of Family Practice has decreased.

Another possible reason for the increase in outpatient visits may be due to the perceived increase in access for beneficiaries. With the advent of TRICARE came the TRICARE Regional Appointment Center (TRAC), a centralized appointment system, and a primary care manager for each beneficiary. The TRAC is supposedly more efficient in scheduling patient appointments. Beneficiaries can now see the same health care provider every time they have an outpatient appointment. Because of these changes, people may feel that they can be seen for care more often simply because it is more convenient for them. They may also feel more comfortable seeking care because they can now see the same provider each time.

Results from the survey indicate that some people do feel that TRICARE has made access more convenient. Results show that approximately 48 percent of people surveyed feel that greater access has enabled them to be seen more often in the Family Care Service. It was not determined however if this perceived awareness of greater access contributed to the increase in the total number of outpatient visits.

Another reason for the lack of a decrease in utilization may be due to the environment in which the study took place. Since patients do not have to pay any deductible or co-pay to seek outpatient care at Madigan. Because of this system, there is not any financial disincentive to seek care that other subjects in previous studies may have dealt with. Self-paying patients with an immediate tangible savings if they avoid a doctor visit may act quite differently than other types of patients.

Another reason for the disappointing results in the utilization of the Healthwise Handbook was due to the implementation phase of the program. While Foundation Health agreed to fund the initial training of Madigan's providers, Madigan is responsible for all follow-up training and education of their beneficiaries. Madigan has provided minimal training and education to their providers and beneficiaries.

Healthcare organizations that were successful in reducing outpatient visits invested their time and resources into educating their providers and patients alike on the values of a self-care program. For example, Health Net supported their patients with newsletter articles and options for worksite workshops and all providers received a book with a feedback form. Their surveyed population informed them that 58 percent felt it saved them at least one trip to a physician and 74 percent had used the book in the last six months. Union Pacific Railroad & Sentara Health Plan has the Healthwise video presented to all

employees in the worksite. In addition, the video is mailed to all employees and retirees.

In Madigan, only providing the Healthwise Handbook to their healthcare beneficiaries and not providing additional training may result in the handbooks not being fully understood or valued by the patients. Healthwise Inc. claims that their introductory workshop guides beneficiaries in the use of the handbook and enhances their overall effectiveness. It also demonstrates the standard methods for managing most health problems by using the handbook and promotes the concept of self-responsibility for health.

Another problem of simply distributing the handbook without any educational session is that patients may believe that the organization is telling them not to see a provider. If the intent and goals of self-care are not fully explained, resentment of the program rather than confidence may result. This can defeat any self-care program. Additionally, Victor Fuchs, a noted expert in the healthcare field, has called education the most important socioeconomic correlate of good health (Leigh, 1992, 51).

Madigan needs to consider having an appropriate education program set up for providers and patients alike to enable the organization to be successful in implementing self-care to their healthcare beneficiaries. An excellent time for this education process would be when beneficiaries are sitting through the

orientation class held by the Department of Family Practice. They could either watch a twenty minute video that is put together by Healthwise Inc. about the Healthwise Handbook, or Madigan could put together their own video, as Group Health of Puget Sound did, that provides orientation to their beneficiaries about the Healthwise Handbook.

Additionally, there seems to be some reluctance among many providers I talked to in the Department of Family Practice to promote the use of self-care and the Healthwise Handbook to their patients. When interviewing various providers about self-care, many felt that there were not a lot of cases in the Family Practice Clinic where self-care by the patient could have prevented an outpatient visit. They also felt that it was much more efficient and less costly for the patient to be diagnosed by a provider instead of having the patient diagnosing themselves.

These comments and concerns conflict with much of the literature giving examples of outpatient visits that could have been prevented through the use of self-care by the patient. The data has proven that self-care can reduce the total number of outpatient visits and decrease costs while maintaining the same level of quality in many healthcare organizations.

In July of 1995, Healthwise Inc. provided facilitator training to some of Madigan's providers. In return, these providers were to train other providers and patients in the proper use of the Healthwise Handbook. Madigan has since had

only had two training sessions. The two training sessions consisted of training six persons from Aviation Medicine and a portion of the Inpatient Nursing staff. There has been no formalized training for the providers of the Department of Family Practice. They did have some informal training by the assistant chief of the department who went through the facilitator training session.

All is not lost, though. Reports from the surveys collected indicate that people are indeed using their Healthwise Handbook and claiming that the handbook is allowing them to treat themselves instead of having to be seen at Madigan. Beneficiaries are reporting that they appreciate the Healthwise Handbook and would recommend it to others.

It is difficult to explain the differences in the total number of outpatient visits saved as reported in the survey (see Table 13) and the increase in outpatient visits as reported in CHCS from 1994 and 1995. As recorded earlier, the report of outpatient visits saved in the survey is not consistent with the increase in outpatient visits over the same time period with similar subjects. There is the potential of self-reported bias, although respondents were not targeted. They willingly filled out these surveys through either receiving a random telephone call or being randomly selected while seeking care in the Family Care Service.

Self-selection bias would tend to strengthen the cost-effectiveness of the self-care program. While trying not to be too critical about the validity of the survey, these results are consistent with previously published reports concerning the Healthwise Handbook's effectiveness.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Self-care, in regard to the Healthwise Handbook, has not been proven to decrease the number of outpatient visits in the Department of Family Practice at Madigan Army Medical Center. Although people claim to use these handbooks and believe it has saved them outpatient visits, official data from CHCS proves otherwise.

A major problem with this study on self-care involves the reduction of visit rates using the self-reported data from the survey versus the CHCS-audited data. It appears that individuals have significant under-or-over reporting due to many factors. This makes you wonder whether some of the previous studies actually overestimated their savings by only surveying their beneficiaries with subjective data and not analyzing actual objective data.

There are at least ten recommendations for further research on self-care programs and the Healthwise Handbook. First, proper promotion and education of the Healthwise Handbook prior to the launch of the program are extremely important to increase beneficiary awareness, gain support, and reduce potential barriers of resistance.

After setting up a well-orchestrated promotion and education program for the Healthwise Handbook, future research should

include assessing the groups after two or three years to determine whether the initial success of the intervention is maintained, enhanced, or diminished.

Research should also be conducted on the processes by which these interventions influence behavior. For example, it is not known what cues encourage usage of materials, and precisely what factors, other than health need, distinguish high utilizers from low utilizers or nonutilizers. In addition, it is not known which materials or combinations of materials produce the greatest effect, or whether existing materials can be improved or be made more "user friendly."

As reported in the literature review, interventions using clinical algorithms (flowcharts) have been among the most effective self-care interventions to date, and to some this has implied a very simple, rational model of decision making based on medical logic. In reality, the studies available to date clearly demonstrate that individual decisions with respect to medical problems are extraordinarily complex and usually involve multiple resources. Most of these resources include other lay individuals rather than professionals or professionally produced educational materials. (Vickery, 1986, 27)

Assessing the total effectiveness of the nurse counseling hotline and self-care manual at Madigan should be further studied at a later date. Further studies could include assessing what

types of diagnoses are most cost-effective in promoting self-care to treat and focus on those.

Additional research should include assessing the acuity rates of patients presenting in the Family Practice Clinic. This information would be helpful in determining what is the demand for self-care and what are the maximum financial returns that Madigan could achieve by promoting self-care to their healthcare beneficiaries. It would also provide an opportunity to focus on decreasing those inappropriate visits.

A further study could include assessing any changes in appropriate and inappropriate visits that might have occurred in this study. By showing the total number of inappropriate visits, there lies a greater probability of convincing more physicians about the benefits of how self-care management could be realized. This is further enhanced with data that would show the exact levels of patients with self-care related acuity levels that present in the Family Practice Clinic. A final benefit of gathering data on the various acuity rates of patients is that it would enable the administrative staff at Madigan to focus their resources on certain target populations. This would allow them to increase the cost-effectiveness of the self-care program.

Another area of research would include assessing the various types of complications due to patients believing they could treat themselves. This is a major concern of many providers I spoke to at Madigan. They feel they have a responsibility towards their

patients to provide the best care possible. A limited number of complications could help persuade some providers that self-care can be both safe for the patient while at the same time beneficial to the organization.

Another recommendation would be assessing the utilization rate of a targeted group of people, namely the young children from ages 1 through 5. Although the study did not show that their utilization of outpatient visits decreased significantly, a study that increased the total number in that sample size may show that there is a decrease in outpatient utilization that is statistically significant.

Another area that is largely unexplored is that of determining which mechanisms and methods are best for teaching and reinforcing self-care. None of the studies mentioned had an underlying theoretical framework or rationale that would help better determine which methods to use or why they may or may not be effective. Such a framework would be highly advisable in future studies. These studies might compare information delivery methods and alternative means of reinforcement.

A final issue is the future of self-care efforts at Madigan. This study can provide some guidance. From the surveyed information, clearly families do read and use the Healthwise Handbook. It may be advisable to have a person available to individualize and reinforce the Healthwise Handbook at the time of illness. Previous studies indicate that no matter how minor

the illness, people are unlikely to trust written algorithms in a self-care manual unless they are supplemented with reinforcement of a more personal nature (Moore, 1980, 2320). Although Madigan does provide a nurse advice line, it may be advisable to advertise this service to people in regard to answering questions about the Healthwise Handbook.

These issues that I have just listed will provide the next set of challenges for research in self-care. In summary, the Healthwise Handbook has not been proven to be an effective tool in reducing outpatient visits at Madigan. It is advisable in the future that if Madigan wishes to have a self-care program that mirrors other proven successful self-care programs, it must place more resources on the training and education of providers and beneficiaries alike.

APPENDIX I

FAMILY PRACTICE OUTPATIENT VISITS

ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE
E6498	6	2	31	0	-66.67
N6249	6	7	51	0	16.67
J8442	3	8	28	0	166.67
J7553	12	9	40	0	-25.00
J1534	9	13	1	1	44.44
N7721	7	1	2	1	-85.71
J7382	15	1	14	0	-93.33
J5863	15	7	44	0	-53.33
B3953	6	6	43	0	0.00
S4324	3	7	35	0	133.33
S5119	23	7	28	0	-69.57
S3599	2	4	29	0	100.00
S9755	8	3	31	0	-62.50
S9386	7	15	41	0	114.29
S7317	12	11	33	0	-8.33
B9842	3	4	34	0	33.33
B7262	3	3	18	0	0.00
B7262	5	6	35	0	20.00
B7262	6	6	14	0	0.00
B7948	2	3	50	0	50.00
N7721	7	25	25	0	257.14
N3140	5	3	9	0	-40.00
C0883	2	1	45	0	-50.00
C1666	6	2	15	0	-66.67
E4251	1	0	23	0	-100.00
C8871	2	3	4	0	50.00
N2338	5	3	24	0	-40.00
N2338	20	5	2	1	-75.00
F9727	2	4	9	0	100.00
F4968	1	1	13	1	0.00
F4968	5	2	18	1	-60.00
G9389	2	9	5	1	350.00
H4369	5	0	1	1	-100.00
H4369	4	13	26	0	225.00
B3953	3	0	16	1	-100.00
B7948	1	0	17	0	-100.00
B7948	1	0	16	0	-100.00
F9727	3	0	16	1	-100.00
H4287	1	0	17	0	-100.00
H4166	1	0	16	0	-100.00
H4166	2	0	34	0	-100.00
H4166	18	0	40	1	-100.00
H4166	9	11	4	0	22.22
H8012	2	0	18	1	-100.00
H8012	8	3	14	1	-62.50
H8012	1	0	17	0	-100.00

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	H7659	2	3	39	0	50.00	
	H0555	27	3	2	1	-88.89	
	H0555	10	2	4	1	-80.00	
	H9390	1	0	29	0	-100.00	
	H8387	1	2	49	0	100.00	
	H2378	1	1	10	0	0.00	
	H2378	1	0	37	0	-100.00	
	H2708	8	6	30	0	-25.00	
	H2078	11	8	20	0	-27.27	
	H7768	10	1	33	0	-90.00	
	H6246	4	0	14	1	-100.00	
	H6246	6	4	2	0	-33.33	
	H4206	9	1	29	1	-88.89	
	H4206	7	22	24	0	214.29	
	H4206	4	2	31	0	-50.00	
	H4206	12	9	30	1	-25.00	
	H5854	10	2	3	1	-80.00	
	H5854	7	8	1	1	14.29	
	H5854	19	3	2	1	-84.21	
	H5854	6	0	22	1	-100.00	
	H7382	1	0	13	0	-100.00	
	H5373	4	4	12	0	0.00	
	H4144	11	0	20	0	-100.00	
	H5743	19	16	31	0	-15.79	
	H5743	14	7	7	0	-50.00	
	H5743	6	5	4	1	-16.67	
	H5743	1	4	30	0	300.00	
	H7912	11	4	33	0	-63.64	
	H7912	1	3	14	0	200.00	
	H0334	1	2	41	1	100.00	
	H0334	5	13	21	0	160.00	
	H0334	0	5	15	0	#DIV/0!	
	H9805	1	0	3	1	-100.00	
	H0289	2	4	33	0	100.00	
	H0289	1	0	29	0	-100.00	
	H0289	3	0	6	0	-100.00	
	H0289	1	25	8	1	2400.00	
	I8878	3	2	3	0	-33.33	
	I8878	13	25	24	0	92.31	
	I8878	2	0	6	1	-100.00	
	I1045	8	4	4	0	-50.00	
	I9851	5	38	36	0	660.00	
	I9365	2	15	35	0	650.00	
	J6845	2	0	38	1	-100.00	
	J3934	1	0	13	0	-100.00	
	J3934	12	0	38	0	-100.00	
	J3934	3	28	47	0	833.33	
	J8964	1	0	6	1	-100.00	
	J8964	7	4	2	0	-42.86	
	J8964	4	4	36	0	0.00	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	J4264	2	0	10	1	-100.00	
	J8978	3	1	10	1	-66.67	
	J6951	0	1	8	1	#DIV/0!	
	J8025	0	1	33	0	#DIV/0!	
	J8025	1	6	38	0	500.00	
	J8025	1	1	9	1	0.00	
	J9165	1	0	11	1	-100.00	
	J9165	1	4	7	0	300.00	
	J9165	1	1	13	0	0.00	
	J9540	1	1	37	0	0.00	
	J9540	1	3	2	0	200.00	
	J8824	2	1	5	1	-50.00	
	J2069	1	0	25	0	-100.00	
	J6902	3	15	23	0	400.00	
	J6902	2	2	4	0	0.00	
	J1534	3	1	31	0	-66.67	
	J1534	3	8	9	1	166.67	
	J1151	6	4	30	0	-33.33	
	J8442	4	3	4	1	-25.00	
	J9891	7	4	44	0	-42.86	
	J2420	5	10	33	0	100.00	
	J6246	1	2	18	0	100.00	
	K0981	6	8	2	1	33.33	
	K3412	11	12	33	0	9.09	
	K2963	2	1	9	1	-50.00	
	K2963	4	4	38	0	0.00	
	K2963	6	2	4	0	-66.67	
	K5612	4	6	27	0	50.00	
	K5612	12	4	2	0	-66.67	
	K5612	4	9	42	0	125.00	
	K1814	0	1	12	1	#DIV/0!	
	K3290	4	3	27	0	-25.00	
	K3290	3	2	8	0	-33.33	
	K3290	2	2	16	1	0.00	
	K9994	2	2	18	0	0.00	
	K5404	1	3	16	0	200.00	
	K5404	3	12	28	0	300.00	
	K7344	7	3	5	0	-57.14	
	K7344	1	2	13	0	100.00	
	K9904	5	2	33	0	-60.00	
	K9904	6	2	10	1	-66.67	
	K9904	11	2	5	1	-81.82	
	K1054	3	13	29	0	333.33	
	K2398	5	7	7	0	40.00	
	K9626	2	1	6	1	-50.00	
	K2398	8	12	22	0	50.00	
	K5292	2	5	27	0	150.00	
	K5763	2	14	6	1	600.00	
	K5763	3	3	13	0	0.00	
	K5763	1	3	44	0	200.00	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	K5433	5	3	3	1	-40.00	
	K3012	1	2	14	1	100.00	
	K3012	1	14	15	0	1300.00	
	K3012	2	19	5	0	850.00	
	K2563	2	0	3	0	-100.00	
	K2563	9	13	1	1	44.44	
	K3650	2	0	4	0	-100.00	
	K3650	4	0	3	1	-100.00	
	K2861	2	1	3	0	-50.00	
	K2861	3	0	3	0	-100.00	
	K2861	12	9	33	0	-25.00	
	K2861	4	0	40	0	-100.00	
	K8040	2	0	9	1	-100.00	
	K8040	3	1	4	0	-66.67	
	K7617	3	1	4	1	-66.67	
	K4790	2	1	5	1	-50.00	
	K4790	3	1	40	0	-66.67	
	K2040	14	12	19	0	-14.29	
	K6915	4	1	35	0	-75.00	
	K6915	14	5	32	0	-64.29	
	K9730	10	10	10	0	0.00	
	K5021	2	4	8	1	100.00	
	K2522	1	0	6	0	-100.00	
	K2522	1	1	35	1	0.00	
	L9701	1	1	4	0	0.00	
	L9701	4	5	39	0	25.00	
	L9701	4	1	28	0	-75.00	
	L2419	1	1	9	1	0.00	
	L2419	4	0	6	1	-100.00	
	L8977	0	2	19	1	#DIV/0!	
	L8977	4	1	6	0	-75.00	
	L8977	7	0	47	0	-100.00	
	L8977	2	0	4	0	-100.00	
	L1184	1	10	18	0	900.00	
	L1184	3	2	39	0	-33.33	
	L1184	5	7	6	1	40.00	
	L1184	5	0	3	0	-100.00	
	L1184	1	0	3	0	-100.00	
	L6833	5	8	15	0	60.00	
	L6833	1	5	16	0	400.00	
	L6833	1	1	9	0	0.00	
	L6833	4	7	47	0	75.00	
	L9804	11	7	11	0	-36.36	
	L1207	9	6	26	0	-33.33	
	L1207	2	5	24	0	150.00	
	L1207	1	4	9	1	300.00	
	L8361	19	11	21	0	-42.11	
	L8361	4	3	35	0	-25.00	
	L4020	3	3	11	0	0.00	
	L4020	3	9	5	0	200.00	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	L4020	3	4	27	0	33.33	
	L8881	3	1	6	0	-66.67	
	L8881	3	3	4	1	0.00	
	L4020	2	10	43	0	400.00	
	L8361	2	2	4	0	0.00	
	L8361	1	0	5	0	-100.00	
	L8361	1	3	33	0	200.00	
	L4249	3	6	21	1	100.00	
	L4249	1	2	46	0	100.00	
	L4249	1	4	46	0	300.00	
	L1909	5	5	14	0	0.00	
	L1909	3	8	13	1	166.67	
	L1909	3	1	7	1	-66.67	
	L1909	5	1	42	0	-80.00	
	L8443	9	2	16	0	-77.78	
	L5116	4	2	7	0	-50.00	
	L5116	4	0	31	0	-100.00	
	L5116	3	2	27	0	-33.33	
	L6120	2	7	6	0	250.00	
	L6120	2	13	33	0	550.00	
	L1149	7	1	13	1	-85.71	
	L1149	2	21	30	0	950.00	
	L1149	1	0	3	0	-100.00	
	L8757	4	2	50	0	-50.00	
	L0632	1	1	18	1	0.00	
	L0632	5	4	44	0	-20.00	
	L6062	4	5	21	0	25.00	
	L6062	4	10	16	0	150.00	
	L6062	4	0	15	1	-100.00	
	L9844	15	19	17	0	26.67	
	L9844	5	1	10	0	-80.00	
	L1483	6	7	37	0	16.67	
	L0866	1	2	6	0	100.00	
	L8647	2	3	4	1	50.00	
	L8647	3	4	18	0	33.33	
	L8647	1	0	15	1	-100.00	
	L6154	4	22	3	1	450.00	
	L6154	11	5	32	0	-54.55	
	L6154	4	3	7	1	-25.00	
	L6154	7	3	9	1	-57.14	
	L1476	5	6	2	0	20.00	
	L1476	2	5	4	0	150.00	
	L1476	8	3	29	0	-62.50	
	L5472	3	4	31	0	33.33	
	L8826	4	5	2	1	25.00	
	L8826	6	1	12	1	-83.33	
	L8826	1	2	7	0	100.00	
	L6720	9	2	9	0	-77.78	
	L1754	7	6	31	0	-14.29	
	L8196	3	25	28	0	733.33	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	M4087	2	2	8	0	0.00	
	M3677	5	8	32	0	60.00	
	M3677	1	3	9	0	200.00	
	M5713	2	1	7	0	-50.00	
	M7485	3	5	3	0	66.67	
	M5425	13	7	5	1	-46.15	
	M5425	0	3	35	0	#DIV/0!	
	M9939	1	1	12	0	0.00	
	M9939	2	1	35	0	-50.00	
	M7547	1	2	15	1	100.00	
	M7547	1	0	21	0	-100.00	
	M7547	2	0	18	1	-100.00	
	M2915	4	3	14	1	-25.00	
	M2915	4	2	36	0	-50.00	
	M9560	6	3	46	0	-50.00	
	M9560	0	6	35	0	#DIV/0!	
	M5733	1	2	7	1	100.00	
	M5733	1	1	5	0	0.00	
	M5733	2	0	15	0	-100.00	
	M8844	0	1	14	1	#DIV/0!	
	M8844	6	8	45	0	33.33	
	M8844	6	1	17	1	-83.33	
	M4039	8	0	43	1	-100.00	
	M5198	18	0	19	1	-100.00	
	M5198	0	3	15	0	#DIV/0!	
	M7498	2	1	39	0	-50.00	
	M7498	2	6	9	0	200.00	
	M7498	16	2	41	0	-87.50	
	M4901	3	4	11	0	33.33	
	M3365	1	2	7	0	100.00	
	M6026	4	8	4	0	100.00	
	M0707	3	0	6	1	-100.00	
	M6793	0	1	13	1	#DIV/0!	
	M6793	3	3	41	0	0.00	
	M6793	0	1	18	0	#DIV/0!	
	M1022	8	5	6	0	-37.50	
	M6449	6	4	19	0	-33.33	
	M6449	6	38	31	0	533.33	
	M0116	1	3	13	1	200.00	
	M4965	3	1	28	0	-66.67	
	M0209	3	0	8	1	-100.00	
	M0209	0	11	4	0	#DIV/0!	
	M3535	11	11	35	0	0.00	
	M3535	3	3	12	1	0.00	
	M2879	1	6	10	0	500.00	
	M1888	9	10	21	0	11.11	
	M1888	6	5	5	1	-16.67	
	M3947	9	0	4	0	-100.00	
	M3947	4	3	24	0	-25.00	
	M5892	8	7	32	0	-12.50	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	M1472	7	6	2	1	-14.29	
	M1472	3	6	5	0	100.00	
	M8260	5	3	7	0	-40.00	
	M8260	3	2	15	1	-33.33	
	M1004	4	5	18	1	25.00	
	M1004	2	13	37	0	550.00	
	M2384	6	11	2	1	83.33	
	M0711	4	2	4	1	-50.00	
	M3746	6	16	29	0	166.67	
	M3746	1	3	7	0	200.00	
	M3746	2	3	36	0	50.00	
	N8082	17	35	49	0	105.88	
	N8082	5	13	19	0	160.00	
	N9688	4	4	49	0	0.00	
	N9979	0	6	17	0	#DIV/0!	
	N0858	1	6	25	0	500.00	
	N0858	4	5	30	0	25.00	
	N3140	34	62	38	0	82.35	
	N8050	2	2	38	0	0.00	
	N8137	2	3	27	1	50.00	
	O4206	9	64	24	0	611.11	
	O1286	25	7	22	0	-72.00	
	O1286	1	1	4	1	0.00	
	O2091	3	2	13	1	-33.33	
	O2091	5	0	30	1	-100.00	
	O3951	2	5	4	1	150.00	
	O3951	3	13	14	1	333.33	
	O3951	2	20	35	0	900.00	
	O3951	1	2	16	0	100.00	
	O3951	2	2	13	1	0.00	
	O6559	1	6	9	0	500.00	
	O9076	4	5	41	0	25.00	
	O9076	1	1	9	1	0.00	
	O3502	4	3	15	1	-25.00	
	O3502	2	12	18	0	500.00	
	O3502	2	2	10	1	0.00	
	O3502	9	15	42	0	66.67	
	O5530	1	2	18	1	100.00	
	O5530	6	7	39	0	16.67	
	O5530	1	5	14	0	400.00	
	O8904	8	6	40	0	-25.00	
	O9150	6	0	11	0	-100.00	
	O9150	11	24	43	0	118.18	
	O9150	3	9	6	0	200.00	
	O1023	20	2	29	0	-90.00	
	O1023	3	3	3	1	0.00	
	O8183	3	9	6	1	200.00	
	O8183	17	12	31	0	-29.41	
	P9078	3	17	31	0	466.67	
	P8663	2	1	5	1	-50.00	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	P8663	2	3	2	0	50.00	
	P8663	1	2	27	0	100.00	
	P8663	0	2	11	1	#DIV/0!	
	P3876	7	0	29	0	-100.00	
	P3876	18	24	2	1	33.33	
	P5399	2	31	34	0	1450.00	
	P4413	8	6	44	0	-25.00	
	P4593	1	5	7	1	400.00	
	P4593	1	3	25	0	200.00	
	P4593	4	4	5	0	0.00	
	P7832	2	12	12	1	500.00	
	P9184	3	3	47	1	0.00	
	P9905	7	1	11	0	-85.71	
	P9905	0	6	15	0	#DIV/0!	
	P2405	3	3	3	0	0.00	
	P2405	3	3	1	0	0.00	
	P2405	12	7	35	0	-41.67	
	P4916	4	21	33	0	425.00	
	P5019	2	32	15	0	1500.00	
	P5019	8	2	13	1	-75.00	
	P5019	1	8	39	0	700.00	
	P4363	3	1	10	1	-66.67	
	P4363	3	0	36	0	-100.00	
	P2572	5	2	48	0	-60.00	
	P8686	5	2	29	0	-60.00	
	Q0509	3	1	4	0	-66.67	
	Q0509	8	7	32	0	-12.50	
	Q0509	5	0	3	1	-100.00	
	R9150	9	10	12	1	11.11	
	R9150	1	0	9	1	-100.00	
	R6210	2	3	42	0	50.00	
	R6210	1	1	12	0	0.00	
	R6452	4	1	12	1	-75.00	
	R6452	4	2	14	0	-50.00	
	R6452	7	3	41	0	-57.14	
	R4388	15	2	34	0	-86.67	
	R2612	4	2	37	0	-50.00	
	R1267	12	5	40	1	-58.33	
	R1267	8	10	8	0	25.00	
	R1267	15	14	12	1	-6.67	
	R6964	3	3	28	0	0.00	
	R6964	11	2	2	1	-81.82	
	R7410	9	3	32	1	-66.67	
	R0992	1	2	13	1	100.00	
	R0078	1	1	10	1	0.00	
	R0078	6	0	11	0	-100.00	
	R0078	11	1	33	0	-90.91	
	R0078	1	0	13	1	-100.00	
	R6839	18	2	33	0	-88.89	
	R6839	1	15	7	1	1400.00	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	R5356	6	3	4	1	-50.00	
	R5356	6	6	44	1	0.00	
	R5356	4	0	7	1	-100.00	
	R0597	2	1	17	1	-50.00	
	R0597	26	16	35	0	-38.46	
	R0597	3	4	10	0	33.33	
	R2523	5	2	47	0	-60.00	
	R5151	1	5	24	0	400.00	
	R6868	3	2	16	0	-33.33	
	R9112	1	1	14	0	0.00	
	R9112	6	0	10	0	-100.00	
	R9112	3	0	6	0	-100.00	
	R9112	1	3	12	0	200.00	
	R9112	5	2	8	0	-60.00	
	R0181	1	5	14	1	400.00	
	R9291	10	10	12	1	0.00	
	R9291	4	6	10	0	50.00	
	R0088	4	3	5	1	-25.00	
	R1221	2	5	16	1	150.00	
	R1221	1	6	8	1	500.00	
	R1221	5	2	14	0	-60.00	
	R9127	2	0	5	0	-100.00	
	R9127	7	6	42	0	-14.29	
	R9127	1	3	19	1	200.00	
	R9127	2	0	7	1	-100.00	
	R6720	2	1	12	0	-50.00	
	R3775	1	1	20	1	0.00	
	R3775	1	0	20	0	-100.00	
	R9737	4	5	29	0	25.00	
	R9737	9	7	2	0	-22.22	
	R7934	3	2	12	1	-33.33	
	R7934	7	3	40	0	-57.14	
	R7934	8	4	15	0	-50.00	
	R7934	11	3	3	0	-72.73	
	R7765	7	6	31	0	-14.29	
	R7915	2	1	10	1	-50.00	
	R7915	5	3	35	0	-40.00	
	R4649	2	0	38	0	-100.00	
	R4649	2	0	10	0	-100.00	
	R4649	0	1	6	0	#DIV/0!	
	S5711	7	0	28	0	-100.00	
	S5711	7	0	7	1	-100.00	
	S5711	8	8	5	1	0.00	
	S9773	5	4	18	1	-20.00	
	S9773	2	25	40	0	1150.00	
	S9773	2	1	20	0	-50.00	
	S9773	4	1	9	1	-75.00	
	S0955	7	2	34	0	-71.43	
	S3524	1	6	5	1	500.00	
	S3524	3	4	23	0	33.33	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	S3524	1	5	2	0	400.00	
	S2837	1	3	17	0	200.00	
	S2837	17	20	42	0	17.65	
	S6457	1	6	11	1	500.00	
	S9405	8	1	52	0	-87.50	
	S6120	2	11	48	0	450.00	
	S5061	2	2	30	0	0.00	
	S5257	10	0	2	1	-100.00	
	S4369	4	1	6	1	-75.00	
	S4369	1	0	4	1	-100.00	
	S4369	1	0	33	1	-100.00	
	S9471	3	8	33	0	166.67	
	S9471	7	15	7	0	114.29	
	S8798	1	2	32	0	100.00	
	S8798	3	7	14	1	133.33	
	S8798	13	18	16	1	38.46	
	S3288	14	5	31	0	-64.29	
	S3288	1	0	5	1	-100.00	
	S1148	15	2	26	0	-86.67	
	S1148	4	2	3	0	-50.00	
	S8057	3	4	5	1	33.33	
	S8057	15	9	27	0	-40.00	
	S6033	5	12	47	0	140.00	
	S8202	3	1	8	1	-66.67	
	S1701	9	16	24	0	77.78	
	S7486	3	1	7	0	-66.67	
	S8871	1	3	30	0	200.00	
	S8871	2	1	4	1	-50.00	
	S8871	2	2	2	0	0.00	
	S8871	1	0	9	1	-100.00	
	S8755	10	9	48	0	-10.00	
	S6693	5	3	3	1	-40.00	
	S6670	8	3	32	0	-62.50	
	S6670	2	1	3	0	-50.00	
	S6670	8	5	2	1	-37.50	
	S6670	1	2	10	0	100.00	
	S4732	3	8	11	0	166.67	
	S4732	3	0	31	0	-100.00	
	S4732	1	2	17	0	100.00	
	S1221	1	0	6	0	-100.00	
	S1221	3	8	4	1	166.67	
	S1221	2	3	37	0	50.00	
	S6008	3	0	24	0	-100.00	
	S6008	1	2	2	1	100.00	
	S3152	3	3	6	0	0.00	
	S8530	4	2	10	1	-50.00	
	S8530	1	4	28	0	300.00	
	S3104	2	1	28	0	-50.00	
	S8064	6	6	38	0	0.00	
	S2730	6	5	28	0	-16.67	

	ID #	94 DATA	95 DATA	AGE	M/F*	% CHANGE	
	S7137	2	5	38	0	150.00	
	S7137	2	0	4	1	-100.00	
	S2601	2	4	44	0	100.00	
	S4484	1	1	6	1	0.00	
* 0 = FEMALE, 1 = MALE							

APPENDIX II

SURVEYED RESULTS OF BENEFICIARIES IN THE FAMILY CARE SERVICE

Received Book	Use Book	Saved PC Visit	Saved ER Visit	Saved Outside Visit	Total Saved Visits	Recommend Book	Greater Access	# in Family
1	1	5	4	0	9	1	1	3
1	0	0	0	0	0	1	1	2
1	1	5	2	0	7	1	1	2
1	1	0	1	0	1	1	0	2
1	1	1	1	0	2	1	0	3
1	1	5	5	0	10	1	1	4
1	0	0	0	0	0	0	0	1
1	1	0	0	0	0	1	1	3
1	0	0	0	0	0	0	0	3
1	1	0	0	0	0	1	0	2
1	1	0	1	0	1	1	0	2
1	1	0	0	0	0	1	1	2
1	1	2	5	5	12	1	0	2
1	1	2	5	5	12	1	0	3
1	1	5	5	5	15	1	1	4
1	1	2	2	2	6	1	1	6
1	0	0	0	0	0	1	1	1
1	1	2	0	0	2	1	1	1
1	1	0	0	0	0	1	0	2
1	0	0	0	0	0	0	1	3
1	1	0	0	0	0	1	0	2
1	1	1	0	0	1	1	0	2
1	0	0	0	0	0	0	1	2
1	1	5	3	0	8	1	1	4
1	1	0	1	0	1	1	1	4
1	0	0	0	0	0	0	0	4
1	1	0	0	0	0	1	0	3
1	0	0	0	0	0	0	0	1
1	0	0	0	0	0	0	0	1
1	1	0	0	3	3	1	0	3
1	1	0	0	0	0	1	0	2
1	1	0	0	0	0	1	1	3
1	1	1	3	0	4	1	1	4
1	1	2	1	0	3	1	1	4
1	1	1	2	0	3	1	1	3
1	1	0	0	0	0	0	0	3
1	0	2	2	0	4	1	1	4
1	0	0	0	0	0	0	0	2
1	1	2	0	0	2	1	1	4
1	0	0	0	0	0	0	1	5
1	0	0	0	0	0	1	0	6
1	1	1	0	0	1	1	0	4
1	0	0	0	0	0	1	1	2
1	1	0	0	0	0	1	1	3
1	1	1	3	0	4	1	0	5
1	0	0	0	0	0	1	0	3

Received Book	Use Book	Saved PC Visit	Saved ER Visit	Saved Outside Visit	Total Saved Visits	Recommend Book	Greater Access	# in Family
1	0	0	0	0	0	1	0	4
1	1	0	1	0	1	1	1	2
1	0	0	0	0	0	0	0	3
1	0	0	0	0	0	1	0	5
1	1	0	0	0	0	1	1	2
1	0	0	0	0	0	0	0	3
1	1	1	0	0	1	1	1	2
1	1	3	1	0	4	1	1	3
1	1	1	0	0	1	1	1	2
1	0	0	0	0	0	1	0	4
1	1	2	0	0	2	1	0	4
1	1	5	0	0	5	1	1	5
1	1	2	0	0	2	1	1	3
1	0	0	0	0	0	0	0	5
1	1	1	1	0	2	1	1	2
1	1	0	0	0	0	1	1	4
1	0	0	0	0	0	1	1	2
1	1	1	0	0	1	1	1	3
1	1	3	0	0	3	1	1	3
1	1	0	0	0	0	1	1	3
1	1	1	0	0	1	1	0	5
1	1	0	0	0	0	1	1	6
1	1	0	0	0	0	1	0	4
1	1	1	0	0	1	1	0	5
1	1	0	0	0	0	1	0	3
1	1	0	0	0	0	1	0	4
1	0	0	0	0	0	0	0	4
1	1	0	0	0	0	1	1	2
1	1	1	0	0	1	1	0	5
1	0	0	0	0	0	0	0	4
1	1	1	0	0	1	1	0	5
1	0	0	0	0	0	0	0	3
1	1	2	0	0	2	1	1	4
1	1	0	0	0	0	1	0	4
1	1	1	0	0	1	1	0	4
1	1	0	0	0	0	1	1	3
1	1	2	0	0	2	1	1	3
1	0	0	0	0	0	1	1	4
1	0	0	0	0	0	0	0	1
1	1	0	0	0	0	1	1	3
1	1	0	0	0	0	0	0	2
1	1	0	1	0	1	1	0	4
1	1	0	0	0	0	1	1	4
1	0	0	0	0	0	1	0	2
1	1	0	0	0	0	1	0	1
1	1	0	0	0	0	1	1	4
1	1	1	0	0	1	1	1	3
1	1	1	0	0	1	1	1	4
1	1	4	0	0	4	1	1	5
1	1	0	0	0	0	1	1	3

Received Book	Use Book	Saved PC Visit	Saved ER Visit	Saved Outside Visit	Total Saved Visits	Recommend Book	Greater Access	# in Family
1	0	0	0	0	0	1	1	3
1	0	0	0	0	0	0	0	4
1	1	0	0	0	0	1	1	2
1	1	1	0	1	2	1	0	4
1	1	2	0	0	2	1	1	2
1	1	1	0	0	1	1	0	2
1	1	0	0	0	0	1	0	4
1	1	0	0	0	0	1	0	5
1	1	4	0	0	4	1	0	2
1	1	0	0	0	0	1	0	3
1	1	1	0	0	1	1	0	2
1	1	2	0	0	2	1	1	4
1	1	2	0	0	2	1	1	3
1	0	0	0	0	0	0	1	2
1	0	0	0	0	0	0	0	3
1	1	1	1	0	2	1	0	4
1	0	0	2	2	4	0	1	2
1	1	1	0	0	1	1	0	3
1	1	0	3	0	3	1	1	4
1	1	0	1	0	1	1	1	4
1	1	5	0	0	5	1	0	4
1	1	2	0	0	2	1	1	7
1	1	0	0	0	0	1	1	4
1	1	0	0	0	0	1	0	2
1	1	0	0	0	0	1	1	5
1	1	0	0	0	0	1	0	5
1	1	5	5	5	15	1	0	4
1	1	0	1	0	1	1	0	3
1	1	0	0	0	0	1	0	3
1	1	0	0	0	0	1	0	3
1	1	0	0	0	0	1	1	4
1	1	0	0	0	0	1	0	2
1	0	0	0	0	0	1	0	2
1	1	3	3	0	6	1	0	3
1	1	0	0	0	0	1	1	6
1	1	1	0	0	1	1	1	4
1	1	2	2	0	4	1	0	3
1	0	0	0	0	0	1	1	3
1	1	0	0	0	0	1	0	3
1	1	0	0	0	0	1	0	2
1	1	2	0	0	2	1	1	3
1	0	0	0	0	0	0	0	2
1	0	0	0	0	0	1	1	4
1	1	0	0	0	0	1	1	5
1	1	1	0	0	1	1	1	3
1	1	0	0	0	0	1	1	4
1	1	0	0	0	0	1	0	3
1	1	0	0	0	0	1	0	2
1	1	4	0	0	4	1	1	4
1	1	2	0	0	2	1	1	4

Received Book	Use Book	Saved PC Visit	Saved ER Visit	Saved Outside Visit	Total Saved Visits	Recommend Book	Greater Access	# in Family
1	1	2	0	0	2	1	0	2
1	1	1	1	0	2	1	0	4
1	1	0	0	0	0	1	1	2
1	1	3	2	5	10	1	0	6
1	1	0	3	0	3	1	0	4
1	1	0	0	0	0	1	1	3
1	1	4	5	4	13	1	0	1
1	1	0	0	0	0	1	1	3
1	1	0	0	0	0	1	1	3
1	0	0	0	0	0	1	0	3
1	1	3	3	3	9	1	1	3
1	1	0	0	0	0	1	1	2
1	1	3	3	3	9	1	1	3
1	1	0	0	0	0	1	0	2
1	1	2	0	0	2	1	0	3
1	1	0	0	0	0	1	1	5
1	0	0	0	0	0	0	1	3
1	1	2	0	0	2	1	1	4
1	1	1	0	0	1	1	1	3
1	1	1	3	0	4	1	1	3
0	0	0	0	0	0	1	0	3
0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	1	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	1	4
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	1	2
0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	0	0	8
0	0	0	0	0	0	0	1	2
0	0	0	0	0	0	0	1	9
0	0	0	0	0	0	0	1	4
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	1	1	3
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	1	3
0	0	0	0	0	0	0	0	2

Received Book	Use Book	Saved PC Visit	Saved ER Visit	Saved Outside Visit	Total Saved Visits	Recommend Book	Greater Access	# in Family
0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	0	6
0	0	0	0	0	0	0	1	2

APPENDIX III

Medical Self-Care Survey

Your answers to the following questions will help provide important research information. Please fill out this survey only if you have been receiving care at Madigan ***for at least 9 months.***

1. Have you received the Healthwise Handbook?

☐ yes ☐ no

2. If no, do you use another self-care manual to help diagnose and/or treat your illnesses?

☐ yes ☐ no

3. Do you or other members of your family currently use the Healthwise Handbook to provide information concerning minor illnesses that occur in your family?

☐ yes ☐ no

4. Has the Healthwise Handbook saved you or members of your family from having to be seen in any of the following areas in the last six months?

Primary physician visits	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5+
Emergency room visits	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5+
Outpatient visits at a civilian facility	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5+

5. Would you recommend the Healthwise Handbook to others?

☐ yes ☐ no

6. Do you feel that the new patient appointment system (TRICARE) has given you greater access and enabled you to be seen more often in the Family Care Service?

7. Total number in family ____

8. Comments?

THANK YOU!

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